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: Crown, Crown Audio, IQ, BCA, and Amcron are registered trademarks of Crown International. HiQnet is a trademark of Harman International Industries, Inc. Other trademarks are the property of their respective owners.

Some models may be exported under the name Amcron.*
**Important Safety Instructions**

**Déclaration de conformité**

**I-Tech HD Series Power Amplifiers**

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

Crown International, Inc.

1715 W. Mishawaka Road

Elkhart, Indiana 46517 U.S.A.

**Equipment Type:** Commercial Audio Power Amplifiers

**Family Names:**

- I-Tech HD
- I-Tech HD Series
- I-Tech HD Family

**Model Names:**

- I-T5000HD, I-T9000HD, I-T12000HD

**EMC Standards:**

- EN 61000-4-2:2001
- EN 61000-4-3:2006
- EN 61000-4-4:2002
- EN 61000-4-6:2006
- EN 61000-4-8:2005
- EN 61000-4-9:2005
- EN 61000-4-11:2004
- EN 61000-4-15:2002
- EN 61000-4-16:2002
- EN 61000-4-17:2002

**Safety Standards:**

- CE: EN 55022:2006
- EN 55024:2010
- EN 61000-3-2:2005 and AMD1:2008
- EN 61000-3-3:2008
- EN 61000-3-11:2000

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

**Date of Issue:** November 1, 2008

---

**Safety Standards:**

- CE: EN 55022:2006
- EN 55024:2010
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**Date of Issue:** November 1, 2008
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2 Setup

2.1 Unpack and Install Your Amplifier

All amplifier will be shipped in standard packaging. If damage is noticed to any box or packaging, please consult your electrician. Always refer to the Crown Amplifier Application Guide for online at www.crownaudio.com. It contains helpful information on preventing unwanted subsonic frequencies, RFRF (radio frequency interference), ground loops, and feedback oscillation.

You may also stack amps without using a cabinet.

You may also stack amps without using a cabinet. See Figure 2.1 for amplifier dimensions. Use a standard 19-inch (48.3 cm) cabinet.

2.2 Connecting to AC Mains

WARNING: The third (ground) prong of the supplied AC power cord connector is a required safety feature. Do not attempt to disable this ground connection by using an adapter or other methods.

Appliances don’t have circuit breakers. 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 below that connector are two slots. Stretch the ends of the clip and insert...
2.3.2 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. Use 3-pin male XLR connectors. Unbalanced line may also be used but may result in noise over long cable runs.

Figure 2.5 shows connector pin assignments for balanced analog wiring or AES/EBU digital wiring. To achieve best results, use shielded balanced line (two-conductor plus shield), 18-20 gauge stranded wire, or AES/EBU shielded wire. The table below shows pin assignments for balanced analog wiring.

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

2.3.3 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. Use Class 2 output wiring. You may use a 4-pole Speakon® connector (Figure 2.7) or banana plugs, spade lugs, or bare wire  for your output connectors (Figure 2.8). To prevent the possibility of short circuits, wrap or otherwise insulate exposed loudspeaker cable connectors.

**CAUTION:** SHOCK HAZARD: Potentially lethal voltages exist at the output connectors when the amplifier is turned on and is passing a signal.

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

<table>
<thead>
<tr>
<th>Distance</th>
<th>Wire Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 25 ft.</td>
<td>16 AWG</td>
</tr>
<tr>
<td>26-40 ft.</td>
<td>14 AWG</td>
</tr>
<tr>
<td>41-60 ft.</td>
<td>12 AWG</td>
</tr>
<tr>
<td>61-100 ft.</td>
<td>10 AWG</td>
</tr>
<tr>
<td>101-150 ft.</td>
<td>8 AWG</td>
</tr>
<tr>
<td>151-250 ft.</td>
<td>6 AWG</td>
</tr>
</tbody>
</table>

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

2.3.4 Stereo Mode Wiring
Typical input and output wiring is shown in Figure 2.9. IMPORTANT: Turn off the amplifier and unplug its power cord. INPUTS: Choose one of these options:

• Connect analog input wiring for both channels.
• Connect an AES/EBU digital signal to the AES/EBU connector.

OUTPUTS: Maintain proper polarity (+/–) on output connectors. Use Class 2 output wiring. Figure 2.9 shows how to wire stereo speakers to the binding posts. Connect Channel 1 loudspeaker’s positive (+) lead to Channel 1 positive (red) terminal of amp; repeat for negative (–). Repeat Channel 2 wiring as for Channel 1.

To wire stereo speakers to the Speaker® connectors, use one of these methods:

Method 1 (Table 1 and Figure 2.10): Wire one Speaker® cable connector to two speakers. Insert the Speaker® cable connector into the amplifier’s top Speakon® connector.

Method 2 (Table 2 and Figure 2.11): Plug the Channel 1 speaker into the Channel 1 (top) Speakon® connector, and plug the Channel 2 speaker into the Channel 2 (bottom) Speakon® connector.
2 Setup

2.2.3 Bridge-Mono Mode

Overview: Turn off the amplifier, enable Bridge-Mono mode using the LCD Control Screen, and configure the amplifier as desired.

1. Turn on the amplifier through the remote control or the front-panel power switch.
   - The LCD Control Screen will light up (Figure 2.12).

2. Under the LCD Control Screen, press the Menu/Exit button or press the Next button until you see OUTPUT MODE on the screen. If it is displayed, OUTPUT MODE is selected (output 1 is not displayed), and the LCD screens are locked.

3. Press the Encoder to select BRIDGE MONO. The LCD control will configure the amplifier in Bridge-Mono mode.


4. IMPORTANT: Turn off the amplifier and unplug its power cord.

Inputs:

There are three ways to connect an input signal to the amplifier (Figure 2.13):

2. Connect an analog signal source to the Channel-1 amplifier input.
3. Connect an instrument source (mains, line, or signal source) to the Channel-2 amplifier input.

NOTE: In Bridge-Mono mode, the Channel 1 Level control sets the level; the Channel 2 Level control is disabled. All Channel 2 controls and controls affecting channel selection are hidden and disabled.

Outputs:

There are two ways to connect an output signal from the amplifier:

1. The amplifier's output can be set to the Digital Output OUT connector.
2. The amplifier's output can be set to the Analog Output OUT connector.


3.1 Protecting Your Speakers

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

Always be aware of your amplifier's clipping thresholds.

1. Use care when making connections, selecting signal sources and controlling the output level. This will save your mixer and your speakers.
2. Use care when making connections, selecting signal sources and controlling the output level. This will save your mixer and your speakers.
3. Do not overload the output of an amplifier into the input signal path. This may result in a high-power signal and cause speaker damage.
4. WARNING: Do not 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 on. Continuous clipping will overdrive other system components.
7. Do not overdrive the mixer, which could cause clipping if the mixer is set too high. Such spikes can damage your system's electronics, which could result in system failure or severe distortion.
8. Avoid sending strong subsonic signals to the amplifier. Such signals will be reproduced with extreme loudness.
9. CAUTION – SHOCK HAZARD: Potentially lethal voltages exist at the output connectors when the amplifier is turned on and is passing a signal.
10. Avoid sending strong subsonic signals to the amplifier. Such signals will be reproduced with extreme loudness.
11. Do not use the amplifier with the red Clip LEDs constantly on. Continuous clipping will overdrive other system components.

3 Operation

3.1 Use care when making connections, selecting signal source and controlling the output level. This will save your mixer and your speakers.
3.2 Use care when making connections, selecting signal source and controlling the output level. This will save your mixer and your speakers.
3.3 Precautions

Before use, your amplifier will need to be configured for proper operation, including input and output wiring hookup. Improper configuration may result in premature clipping and speaker damage.

1. Use care when making connections, selecting signal sources and controlling the output level. This will save your mixer and your speakers.
2. Use care when making connections, selecting signal sources and controlling the output level. This will save your mixer and your speakers.
3. Do not short the ground lead of an output cable to the input signal path. This may result in a high-power signal and cause speaker damage.
4. Use care when making connections, selecting signal sources and controlling the output level. This will save your mixer and your speakers.
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 on. Continuous clipping will overdrive other system components.
7. Do not overdrive the mixer, which could cause clipping if the mixer is set too high. Such spikes can damage your system's electronics, which could result in system failure or severe distortion.
8. Avoid sending strong subsonic signals to the amplifier. Such signals will be reproduced with extreme loudness.
9. Do not operate the amplifier with the red Clip LEDs constantly on. Continuous clipping will overdrive other system components.
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3.3 Precautions

Before use, your amplifier will need to be configured for proper operation, including input and output wiring hookup. Improper configuration may result in premature clipping and speaker damage.

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8. Avoid sending strong subsonic signals to the amplifier. Such signals will be reproduced with extreme loudness.
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3.3 Precautions

Before use, your amplifier will need to be configured for proper operation, including input and output wiring hookup. Improper configuration may result in premature clipping and speaker damage.

1. Use care when making connections, selecting signal source and controlling the output level. This will save your mixer and your speakers.
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3. Do not short the ground lead of an output cable to the input signal path. This may result in a high-power signal and cause speaker damage.
4. Use care when making connections, selecting signal sources and controlling the output level. This will save your mixer and your speakers.
5. Tampering with the circuitry, or making unauthorized circuit changes may be hazardous and invalidates all agency listings.
3 Operation

3.4 Front Panel Controls and Indicators

Many of these functions can be disabled using System Options in the Advanced Menu (Section 4.2.3).

A. Brownout

Protects the device from brownout through internal fault detection.

B. LCD Control Screen

The LCD Control Screen and its controls let the user configure the amp, set up and view error monitoring (such as temperature and load supervision), and recall DSP presets. The presets allow the user to quickly reconfigure the amp for various applications.

C. Power Switch

The Push-on/push-off switch glows green when AC power is present at the power cord and the amplifier circuit breaker is in the “on” position.

D. USB 2.0 Connector

Accepts a USB drive to transfer presets from the amplifier to the amplifier DSP, and vice versa.

E. Fault Indicator

Red LED, one per channel, flashes when the amplifier output channel has stopped operating.

F. Thermal Indicator

Red LED, one per channel, illuminates when the channel has shut down due to thermal stress or overload.

G. Clip Indicator

Red LED, one per channel, illuminates when the channel’s output signal reaches the onset of audible overload.

H. Ready Indicator

Yellow LED indicates network data activity. Data is considered online when network activity is detected.

I. MAC Address

This specific amplifier’s network identifier that is burned into its firmware.

J. Reset Button

Press and hold for 8 seconds to reset the amp. Pressing the button while the Preset light is on will reset the amp to factory default.

K. Next Button

Press “Next” to move to the bottom menu.

L. Signal Indicators

Green LEDS per channel indicate the amplifier’s input signal levels. From top to bottom the LEDS are green when the selected input signal is above –40 dBu, –20 dB: –10 dB: amplifier output is 10 dB below clipping. These LEDS are usually on in a Blackout mode.

M. Ready Indicator

Blue LED indicates amplifier has been turned on and AC power is available. The LED will flash when the AC line voltage is 15% above or below the nominal rated voltage. This indicator can be turned off in Blackout mode.

N. Power Indicator

Blue LED increases amplifier has been turned on and AC power is present. This will flash when the AC circuit breaker is in the “on” position.

O. Data Indicator

Yellow LED indicates network data activity. Data is considered online when network activity is detected.

3.5 Back Panel Controls, Indicators and Connectors

A. AES/EBU Digital Inputs

This 3-pin female XLR connector accepts a digital signal in AES/EBU format. This specific amplifier’s network identifier that is burned into its firmware.

B. AES/EBU Digital Loop-through Outputs

Male XLR active/re-clocked AES/EBU digital loop-through. It is not recommended to loop through more than four amplifiers. If a large distribution of AES is needed, use an AES distribution amplifier or an AES-over-CobraNet network.

C. Network Connector

This EtherCon® Ethernet connector is for networking. It is not recommended to connect more than one network to the amplifier.

D. Fan Panel

A 3-pin female XLR connector for each channel. These two connectors accept 2-pole or 4-pole coded binding posts. Accepts banana plugs, spade lugs, and coded binding posts. Two high-current, 50A Neutrik® Speakon® NL4MLP Output Connectors (mates with NL4FC and NL4), one per channel.

E. Balanced Analog XLR Inputs

One pair per channel of high-current, 60A color-coded binding posts. Accepts banana plugs, spade lugs, and Connectors.

F. Balanced Analog XLR Loop-Through

Two 3-pin female XLR connector accepts XLR balanced analog signals. These two connectors accept 2-pole or 4-pole coded binding posts. Connects to other amplifiers.

G. AES/EBU Digital Loop-through Output

This 3-pin female XLR connector accepts AES/EBU format.

H. Next Button

Press “Next” to move to the bottom menu.

I. Reset Button

Press and hold for 8 seconds to reset the amp. Pressing the button while the Preset light is on will reset the amp to factory default.

J. Reset Button

Press “Reset” to move to the bottom menu.

K. Link/Act Indicator

This EtherCon® Ethernet connector is for networking. It is not recommended to connect more than one network to the amplifier.

L. Link/Act Indicator

This EtherCon® Ethernet connector is for networking. It is not recommended to connect more than one network to the amplifier.

M. Ready Indicator

Press “Next” to move to the bottom menu.

N. Data Indicator

Red LED flashes to signal the number of the current preset if active. It is not recommended to loop through more than four amplifiers. If a large distribution of AES is needed, use an AES distribution amplifier or an AES-over-CobraNet network.

O. Data Indicator

Red LED flashes to signal the number of the current preset if active. It is not recommended to loop through more than four amplifiers. If a large distribution of AES is needed, use an AES distribution amplifier or an AES-over-CobraNet network.

3.6 OUTPUTS SECTION

A. Fans

Provide front-to-back forced airflow for cooling.

B. USB 2.0 Connector

Accepts a USB drive to transfer presets from the amplifier to the amplifier DSP, and vice versa.

C. Balanced Analog XLR Inputs

One pair per channel of high-current, 60A color-coded binding posts. Accepts banana plugs, spade lugs, and Connectors.

D. AES/EBU Digital Inputs

This 3-pin female XLR connector accepts a digital signal in AES/EBU format. This specific amplifier’s network identifier that is burned into its firmware.

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4.1 Navigating the LCD Control Screen
• Press the Sample Rate screen.
• Press Prev to go to the previous item in the menu.
• Turn or press either Encoder to change the value of the displayed parameter.
• Press Menu/Exit to leave the menus and return to the Attenuation screen of your choice.

As a handy reference, Figure 4.2 shows the menu tree you can configure using System Architect software.

The entire front panel or just selected screens can be locked out or controlled in System Architect.

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4 Advanced Operation

Operation Example 1

1. After a few seconds, when the Amplifier screen appears, press Menu/Exit.
2. Press twice.
3. Turn the front panel to the settings. (Note: If you do not see the sensitivity you want, try changing the Maximum Analog Input level.)
4. Press Menu/Exit.

Operation Example 2

1. After a few seconds, when the Amplifier screen appears, press Menu/Exit.
2. Press once and hold the “Menu/Exit” button.
3. Press the “Amp Mode.”
4. Press and hold the “Menu/Exit” button.
5. Turn the front-panel to the settings.
6. Press the “Menu/Exit” button to save your setting.

Operation Example 3

1. After a few seconds, when the Amplifier screen appears, press Menu/Exit.
2. Press twice and hold the “Menu/Exit” button.
3. Press the “Amp Mode.”
4. Press and hold the “Menu/Exit” button.
5. Turn the front-panel to the settings.
6. Press the “Menu/Exit” button to save your setting.

Menu/Exit

4.2.2 Basic Selections

Opening Screen: On powering up, the Control Screen displays the Crown logo. After a few seconds, the firmware version appears, then the Amplifier screen appears.

Maximum Analog Input (in the Amplifier screen)

To tune in the channel, press and hold Encoder knob to select 1 second. The display will show the desired Bress and the attenuation level. While the amplifier is muted, you can also perform all this function. To cancel to exit channel, press and hold Encoder knob for 1 second.

Analog Input Sensitivity:

Note: If you do not see the sensitivity you need, try changing the Maximum Analog Input level. See Figure 4.4.

Analog Input Sensitivity:

This screen displays the attenuation in dB and meters. To change the attenuation in the channel, turn the front-panel to change the attenuation in the channel.

Bridge Mono mode. Turn an Encoder knob to choose among those three options, then press the knob to save your choice. You will be prompted to confirm your choice. Crown logo. After a few seconds, the firmware version appears, then the Amplifier screen appears.

Locate:

Allow users to identify a specific amplifier in a large network of amplifiers without having to compare address information. Locate can be performed from software and/or the front panel.

Sample Rate:

To select the Presets, press Menu/Exit. The sample rate of the amplifier is displayed. To see the sample rate, press the Presets, and hold the Presets in the front panel.

Power on/off:

Sample Rate:

The preset currently in use is displayed in the upper right corner.

Amp Mode:

This menu lets users set the amplifier for Dual, Input 1 or Bridge Mono mode. Turn on the front panel to choose an option, then press the knob to save your choice. You will be prompted to confirm your choice.

4 Advanced Operation

Operation Example 1

1. After a few seconds, when the Amplifier screen appears, press Menu/Exit.
2. Press twice.
3. Turn the front panel to the settings. (Note: If you do not see the sensitivity you want, try changing the Maximum Analog Input level.)
4. Press Menu/Exit.

Operation Example 2

1. After a few seconds, when the Amplifier screen appears, press Menu/Exit.
2. Press once and hold the “Menu/Exit” button.
3. Press the “Amp Mode.”
4. Press and hold the “Menu/Exit” button.
5. Turn the front-panel to the settings.
6. Press the “Menu/Exit” button to save your setting.

Operation Example 3

1. After a few seconds, when the Amplifier screen appears, press Menu/Exit.
2. Press twice and hold the “Menu/Exit” button.
3. Press the “Amp Mode.”
4. Press and hold the “Menu/Exit” button.
5. Turn the front-panel to the settings.
6. Press the “Menu/Exit” button to save your setting.
4 Advanced Operation

Attenuator Limits: You can set any maximum attenuation from 0 dB to +32 dB. If the limits are set too low, the limits will be exceeded, but the attenuation limits are not adjustable beyond +32 dB. The attenuator limits appear as 0 to +32 dB.

NOTE: The attenuator settings must be below the attenuator limit that you have set or you will lose any changes you have made. For example, if the attenuator is set to 0 dB, you cannot change the attenuator limit to 0 dB unless you decrease the attenuator level.

Input Sources: For each channel, turn the Encoder to select analog, digital, or automatic backup source. Options are:
- Analog
- Digital
- Analog with analog override
- Digital with analog override
- Digital with analog backup
- Digital

Maximum Attenuator Input: To enter the attenuator level the maximum input level source +32 dB, press the encoder to confirm your selection.

For more information see Figure 4.4 and the I-Tech Sensitivity Charts in the Operation Manual.

Digital Source Select: Turn the left Encoder knob to select digital source for Channel 1: AES, Cnet1, Cnet2, or Cnet1+2. The right Encoder does the same for Channel 2. Press the knob to confirm your selection.

CobraNet Source Select: Turn the left Encoder knob to select the CobraNet source for Channel 1: Cnet1, Cnet2, or Cnet1+2. The right Encoder does the same for Channel 2. Press the knob to confirm your choice.

AES Source Select: Turn the left Encoder knob to select the digital source for Channel 1: AES1, AES2, AES1+2, or AES2. The right Encoder does the same for Channel 2. Press the knob to confirm your choice.

AES Input Trim: To limit the AES digital input to the analog range +32 dB, the right Encoder does the same for Channel 2. Press the knob to confirm your choice.

AES Input Source: Turn the Encoder to select the digital source for Channel 1: AES1, AES2, AES1+2, or AES2. The right Encoder does the same for Channel 2. Press the knob to confirm your choice.

Output Meters: Here you can set the LCD bar meters to display average or peak levels. Turn an Encoder knob to select the option, then press the knob to confirm your choice.

Speaker Delay: In each channel of the I-Tech HD”s DSP, just before the bandpass gain block diagram. Bandpass Gain adjusts the gain of this block between -24 dB and +24 dB.

In each channel of the I-Tech HD’s DSP, just before the Bandpass Gain block diagram. Bandpass Gain adjusts the gain of this block between -24 dB and +24 dB.

Input Delay: In each channel of the I-Tech HD’s DSP, just before the Bandpass Gain block diagram. Bandpass Gain adjusts the gain of this block between -24 dB and +24 dB.

Output Polarity: Press each channel’s Encoder knob to toggle the output signal polarity between + and –. Pressing the encoder enables or disables the Delay.

Speaker Delay: In each channel of the I-Tech HD’s DSP, just before the Bandpass Gain block diagram. Bandpass Gain adjusts the gain of this block between -24 dB and +24 dB.

Input Delay: In each channel of the I-Tech HD’s DSP, just before the Bandpass Gain block diagram. Bandpass Gain adjusts the gain of this block between -24 dB and +24 dB.

Output Polarity: Press each channel’s Encoder knob to toggle the output signal polarity between + and –. Pressing the encoder enables or disables the Delay.
**4 Advanced Operation**

4.2.4 WEBSITE ICON

This menu lets you monitor the status of the amplifier. Starting from the Amplifier Settings page, press Menu, then press Top menu twice. To access this menu from the Advanced Settings page, press Top menu to get to the Main Settings menu. Then press an Encoder knob to select the Advanced Operations menu.

**Load Monitoring**
Press an Encoder knob to look back at the last reading on each channel. To load monitoring up to the last connected device, select the amplifier output to be monitored. The host always repeats the latest information whether the value is within the limits set in System Architect. O/P means load monitoring up to o/p format means the load is hard wired. RSL means the load is above limits. NO/OD means no output on the O/P channel.

**Thermal**
This indicates the ambient environment percentage when 100% is the ambient environment temperature. If the value is 100%, the amplifier is at its thermal operation limit. The fan error indicator shows whether the line voltage was below or above the line-voltage limits. AC Voltage:

**Watts Output**
This shows the AC voltage to the AC coupling network in the amplifier.

**Operating Time**
This displays the number of hours the amplifier has been on or off. The running time is shown to the second. When load monitoring is on, the last connected device will receive a variable amount of operating time on them due to burn-in and testing before shipping.

**Analog Input Clip Errors**
A clip error occurs if the number of clip errors in the analog input exceeds the value set with the Count slider (within the time set by the Time slider) on the Amplifier Settings page in System Architect. When an error occurs, the count displayed on this screen is incremented, and the operating time since the error is displayed. When an error occurs, the count displayed on this screen is incremented, and the operating time since the error is displayed.

**Fan Errors**
This screen shows the fan error, the count displayed on this screen is incremented, and the operating time since the error is displayed.

**Line Voltage Errors**
This screen shows the line voltage errors without using the control software. A line voltage error occurs if the line voltage falls outside the value set with the High/Low Limit slider on the Amplifier Settings page in System Architect. When an error occurs, the count displayed on this screen is incremented, and the operating time since the error is displayed.

**Amp Output Clip Errors**
An output clip error occurs if the number of clip errors in the output plug exceeds the value set with the Count slider (within the time set by the Time slider) on the Amplifier Settings page in System Architect.

When an error occurs, the count displayed on this screen is incremented, and the operating time since the error is displayed.

To clear this screen, press and release an Encoder. The display will prompt you to confirm your decision by pressing and holding the Encoder.

NOTE: You must use System Architect to enable error reporting and view the logs.

**SLM (Sweep Load Monitoring) Errors**
This screen lets you view SLM error events without using the control software. A SLM error occurs if the load impedance falls below the value set with the Low Limit Load Error parameter. A SLM (Sweep Load Monitoring) error occurs if the load impedance falls below the value set with the Low Limit Load Error parameter. A SLM (Sweep Load Monitoring) error occurs if the load impedance falls below the value set with the Low Limit Load Error parameter. A SLM (Sweep Load Monitoring) error occurs if the load impedance falls below the value set with the Low Limit Load Error parameter.

SLM (Sweep Load Monitoring) Error:
This screen lets you view SLM error events without using the control software. When an error occurs, the count displayed on this screen is incremented, and the operating time since the error is displayed.

To clear this screen, press and release an Encoder. The display will prompt you to confirm your decision by pressing and holding the Encoder.

NOTE: You must use System Architect to enable error reporting and view the logs.

**Clear All Error Logs**
In this screen, you can press and hold the Encoder knob to clear all the logs.

**4.3.0 NETWORKING MENU**

To access this menu, from the Amplifier screen, press an Encoder knob. Use the Left and Right arrow buttons to select a menu. Press the knob to confirm your selection. To exit the Networking menu, press the knob to return to the Amplifier screen.

**Networking Info**
This screen displays information about the audio network IP address, IP address, subnet and broadcast address. Section 5.1.11 on the manual explains these terms.

**Manufacturing Info**
This screen displays information about your I-Tech HD Power Amplifier model number, firmware version, serial number, and other data codes.

**Global Sale Notice**
This notice lets you sell the I-Tech HD Power Amplifier (or a sub unit in the network). Turn an Amplifier knob to set the address, then press the knob to confirm your choice.
4 Advanced Operation

DHCP: Press a button labeled with "DHCP" to access the function. To enable or disable DHCP, press the button labeled "Activity." Page 22

IP Address: You will find the IP address of the amplifier here. See Section 4.1 for more information on ITCP. This function is disabled when DHCP is enabled.

1. Press an Encoder knob to access the left-most digit, then turn the knob to set the number.
2. Press an Encoder knob to access the middle three digits, then turn the knob to set the number.
3. Press an Encoder knob to access the right-most digit, then turn the knob to set the number.
4. Press an Encoder knob to access the right-most digit, then turn the knob to set the number.
5. Press an Encoder knob to access the right-most digit, then turn the knob to set the number.

Subnet Mask:

You set the Subnet Mask of the amplifier here. See Section 9.1 for more information on Subnet Mask. This function is disabled when DHCP is enabled.

1. Press an Encoder knob to access the left-most digit, then turn the knob to set the number.
2. Press an Encoder knob to access the middle three digits, then turn the knob to set the number.
3. Press an Encoder knob to access the right-most digit, then turn the knob to set the number.
4. Press an Encoder knob to access the right-most digit, then turn the knob to set the number.
5. Press an Encoder knob to access the right-most digit, then turn the knob to set the number.

CobraNet Menu:

To access the CobraNet Menu, press the left Encoder knob. Press an Encoder knob to select the CobraNet menu option. See Section 9.2 and the System Architect Help files for more on CobraNet.

CobraNet Information:

This screen displays information about the CobraNet menu. The firmware version, ethernet status (down or up), and conductor priority.

CobraNet Menu:

This menu has selections for setting CobraNet parameters. Press an Encoder knob to select the CobraNet Menu options. See Section 9.2 for more information on CobraNet. Operation Manual: Vol. 2, Ch 1

CobraNet Transport Latency:

Turn an Encoder knob to set the latency. A latency of 0.00 means there is no delay. The latency must match the CobraNet source for proper CobraNet reception.

CobraNet Menu:

This menu has selections for setting CobraNet parameters. Press an Encoder knob to select the CobraNet Menu options. See Section 9.2 and the System Architect Help files for more on CobraNet. Operation Manual: Vol. 2, Ch 1

CobraNet Center Point:

Turn an Encoder knob to set the center point. Turn an Encoder knob to set the center point.

CobraNet Menu:

This menu has selections for setting CobraNet parameters. Press an Encoder knob to select the CobraNet Menu options. See Section 9.2 and the System Architect Help files for more on CobraNet. Operation Manual: Vol. 2, Ch 1

CobraNet Rx Bundle:

Turn an Encoder knob to set the number of the CobraNet Rx Bundle for Channel 1. Turn the right Encoder knob to set the number for Channel 2.

4.3.25 COBRANET MENU

To access the CobraNet Menu, press the left Encoder knob. Press an Encoder knob to select the CobraNet menu option. See Section 9.2 and the System Architect Help files for more information on CobraNet.

CobraNet Center Point:

Turn an Encoder knob to set the center point. Turn an Encoder knob to set the center point.

CobraNet Menu:

This menu has selections for setting CobraNet parameters. Press an Encoder knob to select the CobraNet Menu options. See Section 9.2 and the System Architect Help files for more on CobraNet. Operation Manual: Vol. 2, Ch 1

CobraNet Rx Bundle:

Turn an Encoder knob to set the number of the CobraNet Rx Bundle for Channel 1. Turn the right Encoder knob to set the number for Channel 2.

Ch2 CobraNet Rx:

Turn the left Encoder knob to set the number of the RxA Bundle for Channel 2. Turn the right Encoder knob to set the number for Channel 2.

Ch1 CobraNet Rx:

Turn the left Encoder knob to set the number of the RxA Bundle for Channel 1. Turn the right Encoder knob to set the number for Channel 2.

CobraNet Transport Latency:

Turn an Encoder knob to set the latency. A latency of 0.00 means there is no delay. The latency must match the CobraNet source for proper CobraNet reception.

CobraNet Menu:

This menu has selections for setting CobraNet parameters. Press an Encoder knob to select the CobraNet Menu options. See Section 9.2 and the System Architect Help files for more on CobraNet. Operation Manual: Vol. 2, Ch 1

CobraNet Center Point:

Turn an Encoder knob to set the center point. Turn an Encoder knob to set the center point.

CobraNet Menu:

This menu has selections for setting CobraNet parameters. Press an Encoder knob to select the CobraNet Menu options. See Section 9.2 and the System Architect Help files for more on CobraNet. Operation Manual: Vol. 2, Ch 1

CobraNet Rx Bundle:

Turn an Encoder knob to set the number of the CobraNet Rx Bundle for Channel 1. Turn the right Encoder knob to set the number for Channel 2.

Ch2 CobraNet Rx:

Turn the left Encoder knob to set the number of the RxA Bundle for Channel 2. Turn the right Encoder knob to set the number for Channel 2.

Ch1 CobraNet Rx:

Turn the left Encoder knob to set the number of the RxA Bundle for Channel 1. Turn the right Encoder knob to set the number for Channel 2.

CobraNet Transport Latency:

Turn an Encoder knob to set the latency. A latency of 0.00 means there is no delay. The latency must match the CobraNet source for proper CobraNet reception.

CobraNet Menu:

This menu has selections for setting CobraNet parameters. Press an Encoder knob to select the CobraNet Menu options. See Section 9.2 and the System Architect Help files for more on CobraNet. Operation Manual: Vol. 2, Ch 1

CobraNet Center Point:

Turn an Encoder knob to set the center point. Turn an Encoder knob to set the center point.
4 Advanced Operation

4.4 File Transfer Via the USB Port

On the front panel of the amplifier is a USB Type A port which can transfer files either direction between a USB flash drive and the amplifier. These files can be two types: A Device file, which contains all 50 presets and the current amplifier DSP settings. A Preset file, which contains amplifier DSP settings for a specific loudspeaker/

direction between a USB flash drive and the amplifier. These files can be of two types: A Device file, which contain all 50 presets and the current amplifier DSP settings. A Preset file, which contains amplifier DSP settings for a specific loudspeaker/
4 Advanced Operation

4.6 Digital Audio Options (AES/EBU)
Digital audio inputs allow you to keep the amplifier and its signal processing in the digital domain. By keeping the audio signals digital, you can eliminate the number of Digital-to-Analog and Analog-to-Digital conversions. This provides better sound quality with reduced latency of digital interference.

The AES/EBU connector provides the most widely accepted format. Connect an AES/EBU signal to the AES/EBU connector on the rear panel. If the amplifier’s low-voltage power supply goes to test or the AES/EBU input circuit goes to the AES/EBU output. The amplifier has a digital input buffer circuit so it will adapt to any digital level, between 0V and 2V, that is connected to it.

4.7 Networking the Amplifier
You can use your understanding of networking concepts: please see Appendix A: Network and 3 Features. Please check the System Architect help file for directions on how to use the network configuration tools.

An AES/EBU signal may be used as an auxiliary return network and can use existing I-Tech device or venue files.

You can make the following settings via the front panel or by using System Architect software:

• System Architect

The next several pages explain some of the available DSP functions. See the System Architect Help files for more detailed information.

4.8 Software-Controllable Onboard DSP
The I-Tech HD Series includes the latest generation of onboard digital signal processing, including the HiQnet System Architect, the 24-bit/96kHz converters that support AES/EBU and other high-resolution digital inputs. The amplifier can be monitored and controlled with the HiQnet System Architect software.

4.9.2 Amplifier DSP Selection Screen
The on-screen display shows the list of the network adaptors currently in the computer. If you have more than one adapter, you can select the one you want by clicking the right-mouse button.

4.9.3 Amplifier Mode
This panel is the first of the four main control panels shown below. Channel 1 and 2 Controls can be switched between signal levels and other parameters in the clock button.

4.10 Clip Indicators
The yellow zone is from 0.0 to 0.5 (90% of the clipping range). The green zone is from 0.5 to 1.0 (95% of the clipping range). The red zone is above 1.0 (100% of the clipping range). The audio is clipped when the amplifier is on this red zone.

4.10.2 Input Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

4.10.3 Output Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

4.10.4 Limit Indicator
This section shows the status of the clipper. The clipper is on when the output signal is clipped. The clipper is off when the output signal is not clipped.

Indicators

• Clip Indicator

Output Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

4.10.5 Input, Mode, Level, Level Meters, and Indicators
This panel is the left side of the first main control panel shown above. Channel 1 and 2 Controls can be switched between signal levels and other parameters in the clock button.

Input Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Output Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Indicators

• Clip Indicator

Input, Mode, Level, Level Meters, and Indicators
This panel is the left side of the first main control panel shown above. Channel 1 and 2 Controls can be switched between signal levels and other parameters in the clock button.

Input Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Output Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Indicators

• Clip Indicator

Input, Mode, Level, Level Meters, and Indicators
This panel is the left side of the first main control panel shown above. Channel 1 and 2 Controls can be switched between signal levels and other parameters in the clock button.

Input Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Output Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Indicators

• Clip Indicator

Input, Mode, Level, Level Meters, and Indicators
This panel is the left side of the first main control panel shown above. Channel 1 and 2 Controls can be switched between signal levels and other parameters in the clock button.

Input Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Output Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Indicators

• Clip Indicator

Input, Mode, Level, Level Meters, and Indicators
This panel is the left side of the first main control panel shown above. Channel 1 and 2 Controls can be switched between signal levels and other parameters in the clock button.

Input Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Output Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Indicators

• Clip Indicator

Input, Mode, Level, Level Meters, and Indicators
This panel is the left side of the first main control panel shown above. Channel 1 and 2 Controls can be switched between signal levels and other parameters in the clock button.

Input Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Output Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Indicators

• Clip Indicator

Input, Mode, Level, Level Meters, and Indicators
This panel is the left side of the first main control panel shown above. Channel 1 and 2 Controls can be switched between signal levels and other parameters in the clock button.

Input Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Output Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.

Clip Indicator

Indicators

• Clip Indicator

Input, Mode, Level, Level Meters, and Indicators
This panel is the left side of the first main control panel shown above. Channel 1 and 2 Controls can be switched between signal levels and other parameters in the clock button.

Input Signal Level Monitor
The measurement range is from 0dBFS to –40dBFS with 0.5dB resolution. Each audio channel can be linked with the Link button.

Switched Audio Input: This input channel only switches the selected (selected) audio input to the Amplifier Input.
4 Advanced Operation

4.8.4 Input Signal Router
Each channel of the I-Tech's signal processing has an Input Signal Router that lets you select which audio signal will be used by the channel. Choose one of the following configurations:

- **Analog Audio**: This is the audio input from the preamp's connector on the back panel of the amp. Choices for the Analog Audio input are Channel 1, Channel 2, or a sum of Channels 1 and 2.

- **Digital Audio**: This is the audio input from the AES/EBU or CobraNet connector on the back panel of the amp. It can be set up for Digital with Analog Backup or Digital with Analog Override:
  - **Digital with Analog Backup**: The input takes the digital signal as its source when the digital signal (or just the digital clock) is present. If the digital lock is lost, the input switches to the selected Analog Source. Once that digital lock is reacquired, the input switches back to the selected digital signal. If the analog input signal is not available, the digital audio input is used.
  - **Digital with Analog Override**: The input takes the digital signal as its source. If the analog signal level is greater than an Analog Signal Detect Threshold that the user defines, the input switches to the analog signal. As long as the analog signal level exceeds the threshold, or as long as its level falls below threshold for a user-defined hold time, the input remains the analog signal.

**Analog Signal Detect Threshold (-100 dB to 0 dB)**
This option is not displayed unless overrides are selected. If the selected analog signal exceeds the threshold level, the analog signal becomes the source for the input rather than the selected digital signal source. Use the numeric spin box or the fader provided to set the threshold.

**Hold Time (0 - 60 seconds)**
This option is not displayed unless overrides are selected. Once an overriding analog input signal falls below threshold, the Hold Time determines how long the input will continue to use the selected analog signal before reverting to the selected digital signal input. Use the numeric spin box or the fader provided to set this time.

The control operation will vary based on the mode that is selected.

4.8.5 Source Configuration
In this screen you can configure the levels and settings of the analog, AES, and CobraNet inputs. Each input signal of each channel can be independently muted.

The I-Tech HD amplifier can be set to work as a fixed gain amplifier: any input signal is given a fixed amount of gain, either 26dB or 32dB. In addition, you can set the input sensitivity to determine how much gain is provided. See Section 4.8.20 for more details.

4.8.6 CobraNet Advanced Settings
In the CobraNet Advanced Settings screen, you can configure the CobraNet transport latency or buffering. This latency must be set to the same latency as the source CobraNet device.

The Foldback control panel lets you select the source CobraNet signal to transmit via CobraNet. Selections available are the Analog Inputs, Amplifier Outputs, or AES input signal. The audio can be routed out through only one bundle.
4 Advanced Operation

4.8.7 Input Signal Compressor
An input signal compressor is available for each channel. Several parameters control this feature:

**On/off button:** Enables or disables this function.

**Threshold:** Sets the level, in dBu, above which the compressor begins to attenuate the input signal. The level corresponds to the input level meter reading. The compressor is “feedforward,” meaning that the level detection point is located before the gain control stage. The range is from +20 dBu to –50 dBu.

**Attack Time:** Sets the attack time of the compressor. The attack time is defined as the time it takes the compressor to attenuate the input gain by 20 dB. The range is from 1 millisecond to 0.1 second.

**Release Time:** Sets the release time of the compressor. The release time is defined as the time it takes the compressor to increase the signal gain by 20 dB. The range is from 10 milliseconds to 10 seconds.

**Compression Ratio:** Sets the compression ratio of the compressor. The ratio is the relation between the amount of attenuation applied by the compressor verses the amount that the input signal is over the threshold. The available settings are 2:1 to 32:1.

**Makeup gain:** The amount of gain you want to apply to the compressed signal to raise it to a higher level.

**Knee width:** The knee of the compression curve is the transition point between no compression and compression. The wider the knee, the more gradual the transition — no compression is no distortion whereas the wider the knee the more compression.

Depending on the settings for each channel, a single controller Compressor connects the compressors together. The compressors are fed at their sense points, meaning that the greater of the two input signals will be used as stimulus to both compressors. Each compressor will still compress based on its individual threshold, attack, release and ratio settings.

4.8.8 Input Delay and Driver Delay
In these screens you can set the signal delay for each channel in seconds, feet or meters.

4.8.9 Input EQ and Output EQ
These screens let you adjust channel equalization at up to 16 frequencies. You can select filter type, frequency, gain, and bandwidth in octaves or Q as set by the user preferences in System Architect. Changes to the equalizer’s frequency response can be done by typing in parameters or by click-dragging the response curve.
The amplifier contains two FIR blocks which can be used in various configurations:

- 2x2 mode: One FIR block per channel can be used.
- Bridge mono mode: Both FIR filters are available - 2 filters of one stereo pair can be used in both channels. However, you can use one FIR on each channel.

FIR advantages:
FIR has a longer processing latency but has less phase artifacts compared to IIR. FIR allows for brickwall, 48dB/octave filters.

IIR advantages:
IIR has one processing block per channel; IIR has one 24dB/octave filters.

The Crossover section lets you use infinite impulse response (IIR) or finite impulse response (FIR) filters for the crossover.

4 Advanced Operation

4.8.10 Crossover Filters
The crossover section lets you define the impulse response (IR) for the amplifier's crossover. T

- bridge mono mode: Both FIR filters are available - 2 filters of one stereo pair can be used in both channels. However, you can use one FIR on each channel.

FIR advantages:
FIR has a longer processing latency but has less phase artifacts compared to IIR. FIR allows for brickwall, 48dB/octave filters.

IIR advantages:
IIR has one processing block per channel; IIR has one 24dB/octave filters.

The Crossover section lets you define the impulse response (IR) for the amplifier's crossover. T

- bridge mono mode: Both FIR filters are available - 2 filters of one stereo pair can be used in both channels. However, you can use one FIR on each channel.

FIR advantages:
FIR has a longer processing latency but has less phase artifacts compared to IIR. FIR allows for brickwall, 48dB/octave filters.

IIR advantages:
IIR has one processing block per channel; IIR has one 24dB/octave filters.

The Crossover section lets you define the impulse response (IR) for the amplifier's crossover. T

- bridge mono mode: Both FIR filters are available - 2 filters of one stereo pair can be used in both channels. However, you can use one FIR on each channel.

FIR advantages:
FIR has a longer processing latency but has less phase artifacts compared to IIR. FIR allows for brickwall, 48dB/octave filters.

IIR advantages:
IIR has one processing block per channel; IIR has one 24dB/octave filters.
4 Advanced Operation

4.8.13 Amplifier Settings

The Amplifier Output Enable button turns each channel on or off.

Error Reporting

This I-Tech amplifier can detect different error conditions per channel and report them in the AC line voltage. Each error type can be individually configured to report the error through the network. Network reported errors appear in the control software Event Log. The following describes these error conditions:

Clip: An input detector provides a channel. These events will occur only if an input exceeds the defined clip current. The amplifier channel clip detectors also indicate thermal errors.

Report Errors via Network: When this is turned on, high AC line voltage can be individually configured to report the error through the network.

Network reported errors appear in the control software Event Log. The following describes these error conditions:

Threshold: Error can be generated for excessive temperature above the critical point of the amplifier channel. The Threshold Control button determines if, in a network, the system will automatically shut down or continue to operate. This control has a range of 1 to 100.

Load status: This indicator shows the current status of the connected load. This value determines the output signal level connected to each amplifier channel. When enabled, the I-Tech continuously monitors the amplifier output voltage and load status indicator and, if enabled, the System Architect Error reporting functions and the user can issue an alert. There are also controls and two indicators for each channel:

- On: Enables or disables the load supervision function.

- Offline: Indicates whether the load supervision function is active or not.

Channel: Each channel input has a label that you can rename for your own use. Simply tap the text area to edit the name. These names will appear in the individual control panels. Information includes manufacturer, model, date code, and serial number. The green items control panels. Information about the amplifier is stored in the software database and is displayed on the software control panels. Information includes manufacturer, model, line code, and serial number. The green item, which is not to include CobraNet Transport Latency and FIR Processing Latency.

4.8.14 Amplifier Information

Information about the amplifier is stored in the software database and is displayed on the software control panels. Information includes manufacturer, model, line code, and serial number. The green item, which is not to include CobraNet Transport Latency and FIR Processing Latency.

Table 4. I-Tech HD latencies at two sample rates

<table>
<thead>
<tr>
<th>Sample Rate</th>
<th>Latency (Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>48 kHz</td>
<td>1.166 ms</td>
</tr>
<tr>
<td>96 kHz</td>
<td>2.333 ms</td>
</tr>
</tbody>
</table>

4.8.15 Apply to Others

This screen lets you apply the System Architect settings to your I-Tech HD amplifier to other I-Tech HD amplifiers in the venue file.
4 Advanced Operation

4.8.17 Preset Manager

The control settings of all the functions can be stored as presets. Up to 50 presets can be saved in the I-Tech's nonvolatile memory. Each preset can be named with a 30 character name describing its function, which is also stored in memory.

- **Store Preset Control**: Stores the current settings to the specified preset.
- **Recall Preset Control**: Recalls the specified preset settings. It appears in the Active Preset field. If you change the settings after recalling a preset, the Store button will turn yellow.

You can drag the presets to place them in a logical order. Also, you can color-code the presets to organize them.

4 Advanced Operation

4.8.18 Signal Generator

Both channels share a noise generator that allows noise to be mixed into the audio signal. This is useful for noise masking applications and testing. Each channel has the following controls:

- **Noise On/Off**: Turns the noise generator on or off.
- **Noise Type**: Selects full-spectrum white noise or pink noise.
- **Noise Level**: Sets the noise level with a fader.

The sine-wave signal generator lets you mix a single tone into the audio signal. Its controls include:

- **Sine On/Off**: Turns the sine-wave generator on or off.
- **Sine Frequency**: Sets the frequency anywhere from 20Hz to 20kHz.
- **Sine Level**: Sets the level of each channel's sine-wave signal independently.

The noise generator and sine-wave generator cannot be used at the same time.
4 Advanced Operation

Maximum analog input
Low: +21 dB (0 dB)
High: +15 dB (+6 dB)

Analog input

Source select

Output attenuator

Fixed gain compensation

Limiters

Amplifier

Figure 4.4 The Various Gain Settings in the I-Tech HD

4.8.19 Fixed-Gain Mode in the I-Tech HD

Fixed-gain mode makes each I-Tech HD model have the same gain, regardless of output power.

To do this, fixed-gain mode sets the Analog Input Sensitivity to 0 dB gain, then adjusts the Fixed gain Compensation fader, and the Maximum Analog Input, to achieve 26 or 32 dB of gain (if the Maximum Analog Input is set Low), or to achieve 32 or 38 dB of gain (if the Maximum Analog Input is set High), no matter what model the amplifier is.

However, in fixed-gain mode, the input trims (Analog, AES, CobraNet) can still be adjusted.

5 Troubleshooting

CONDITION: Power indicator is off and power switch is not illuminated.

POSSIBLE REASON:
- The amplifier has lost AC power.
- The amplifier is not plugged into the power receptacle.
- Rear-panel breaker is off.

CONDITION: Power indicator is off and power switch is illuminated.

POSSIBLE REASON:
- The amplifier's power switch is off.

CONDITION: Power indicator is flashing.

POSSIBLE REASON:
- The AC line voltage has dropped below 15% or has risen above 15% of the rated range.

CONDITION: Thermal indicator is on.

POSSIBLE REASON:
- The amplifier is becoming too hot for safe operation. Allow amplifier to cool. Check for loads less than 2 ohms, and for excessive input levels. Check for proper ventilation.

CONDITION: Fault indicator is flashing.

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

CONDITION: Power indicator is off and power switch is not illuminated.

POSSIBLE REASON:
- Load is wired incorrectly or Output Mode switch in LCD-screen menu is set incorrectly. Check both.
- Input is overloaded by a signal level that is too high. Turn down one amplifier level control (Encoders), or turn down the input signal, until the clip light goes out. Note: If the signal sounds distorted even though the Clip LED is off, the input signal may be distorted before it reaches the amplifier input. Check gain staging and output levels of the mixer or preamp.
## Troubleshooting

### Condition: No sound, even though the amp has power. Power LED is on with or without flashing and the amp is receiving an input signal. Signal indicator is on or flashing.

**Possible Reasons:***
- Speakers not connected.
- Open circuit due to speaker failure.
- Ready LED is off. Channel has been set to standby mode via the software.
- Amplifier is in blackout mode. Press or turn an Encoder to reactivate the LCD display.

### Condition: No input signal.

**Possible Reasons:***
- Input signal level is very low.
- Another source is selected or routed.

### Condition: Data indicator not flashing, even though host computer software is active.

**Possible Reasons:***
- There is only one conductor allowed per network system. This indicator is lit when the amplifier is the conductor.
- Amplifier is in blackout mode. Press or turn an Encoder to reactivate the LCD display.

### Condition: COND indicator is off.

**Possible Reasons:***
- There is only one conductor allowed per network system. This indicator is lit only when the amplifier is the conductor.
- Amplifier is in blackout mode. Press or turn an Encoder to reactivate the LCD display.

### Specifications

**Minimum Guaranteed Power**

<table>
<thead>
<tr>
<th>Model</th>
<th>I-T5000HD</th>
<th>I-T9000HD</th>
<th>I-T12000HD</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 Hz - 20 kHz with 0.35% THD</td>
<td>1800W</td>
<td>2000W</td>
<td>2000W</td>
</tr>
<tr>
<td>Stereo, 2 ohms (per ch.)</td>
<td>120W</td>
<td>120W</td>
<td>120W</td>
</tr>
<tr>
<td>Stereo, 4 ohms (per ch.)</td>
<td>240W</td>
<td>240W</td>
<td>240W</td>
</tr>
<tr>
<td>Stereo, 8 ohms (per ch.)</td>
<td>480W</td>
<td>480W</td>
<td>480W</td>
</tr>
<tr>
<td>Bridge mono, 4 ohms</td>
<td>3600W</td>
<td>4000W</td>
<td>4000W</td>
</tr>
<tr>
<td>Bridge mono, 8 ohms</td>
<td>7200W</td>
<td>8000W</td>
<td>8000W</td>
</tr>
<tr>
<td>2500W</td>
<td>3000W</td>
<td>1500W</td>
<td></td>
</tr>
<tr>
<td>5000W</td>
<td>6000W</td>
<td>7000W</td>
<td></td>
</tr>
<tr>
<td>8000W</td>
<td>9000W</td>
<td>10000W</td>
<td></td>
</tr>
</tbody>
</table>

**Performance**

<table>
<thead>
<tr>
<th></th>
<th>I-T5000HD</th>
<th>I-T9000HD</th>
<th>I-T12000HD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Sensitivity (volts RMS) for rated output</td>
<td>Adjustable in 0.1V steps from 1.28V to 8V</td>
<td>Adjustable in 0.1V steps from 1.28V to 8V</td>
<td>Adjustable in 0.1V steps from 1.28V to 8V</td>
</tr>
<tr>
<td>Voltage Gain for full rated power at 8 ohms</td>
<td>37.1 dB to 37.9 dB</td>
<td>22.2 dB to 23.0 dB</td>
<td>24.5 dB to 25.0 dB</td>
</tr>
<tr>
<td>Frequency Response (at 1 watt, 20Hz - 20kHz)</td>
<td>± 0.25 dB</td>
<td>± 0.25 dB</td>
<td>± 0.25 dB</td>
</tr>
<tr>
<td>Signal to Noise Ratio below rated full-bandwidth power, A-weighted</td>
<td>&gt; 108 dB</td>
<td>&gt; 108 dB</td>
<td>&gt; 108 dB</td>
</tr>
<tr>
<td>Total Harmonic Distortion (THD) at rated power at 1kHz</td>
<td>&lt; 0.1%</td>
<td>&lt; 0.1%</td>
<td>&lt; 0.1%</td>
</tr>
<tr>
<td>Latency</td>
<td>1.16 ms at 48 kHz, 529 µS at 96 kHz</td>
<td>1.16 ms at 48 kHz, 529 µS at 96 kHz</td>
<td>1.16 ms at 48 kHz, 529 µS at 96 kHz</td>
</tr>
<tr>
<td>A/D, D/A Converters</td>
<td>24-bit 96 kHz Cirrus Logic</td>
<td>24-bit 96 kHz Cirrus Logic</td>
<td>24-bit 96 kHz Cirrus Logic</td>
</tr>
<tr>
<td>Digital Input</td>
<td>AES/EBU, 24-bit, 32-96 kHz</td>
<td>AES/EBU, 24-bit, 32-96 kHz</td>
<td>AES/EBU, 24-bit, 32-96 kHz</td>
</tr>
<tr>
<td>Network</td>
<td>Onboard HiQnet and TCP/IQ, compatible with standard 100Mb Ethernet hardware</td>
<td>Onboard HiQnet and TCP/IQ, compatible with standard 100Mb Ethernet hardware</td>
<td>Onboard HiQnet and TCP/IQ, compatible with standard 100Mb Ethernet hardware</td>
</tr>
<tr>
<td>DCP</td>
<td>24-bit analog with 24-bit floating-point DCP processing</td>
<td>24-bit analog with 24-bit floating-point DCP processing</td>
<td>24-bit analog with 24-bit floating-point DCP processing</td>
</tr>
<tr>
<td>Crossfades</td>
<td>Speed crossfades for stereo inputs, 0.15 dB steps, length 60 - 100 ms</td>
<td>Speed crossfades for stereo inputs, 0.15 dB steps, length 60 - 100 ms</td>
<td>Speed crossfades for stereo inputs, 0.15 dB steps, length 60 - 100 ms</td>
</tr>
</tbody>
</table>
6 Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>I-T5000HD</th>
<th>I-T9000HD</th>
<th>I-T12000HD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Damping Factor (8 ohms)</strong></td>
<td>&gt; 5000</td>
<td>&gt; 5000</td>
<td>&gt; 5000</td>
</tr>
<tr>
<td><strong>Crosstalk (below rated power, 20 Hz to 1 kHz)</strong></td>
<td>&gt; 80 dB</td>
<td>&gt; 80 dB</td>
<td>&gt; 80 dB</td>
</tr>
<tr>
<td><strong>Common Mode Rejection (CMR) (20 Hz to 1 kHz)</strong></td>
<td>&gt; 55 dB, typically &gt; 70 dB</td>
<td>&gt; 55 dB, typically &gt; 70 dB</td>
<td>&gt; 55 dB, typically &gt; 70 dB</td>
</tr>
<tr>
<td><strong>DC Output Offset (Shorted input)</strong></td>
<td>&lt; ± 3 mV</td>
<td>&lt; ± 3 mV</td>
<td>&lt; ± 3 mV</td>
</tr>
<tr>
<td><strong>Input Impedance (balanced)</strong></td>
<td>20 kilohms balanced, 10 kilohms unbalanced</td>
<td>20 kilohms balanced, 10 kilohms unbalanced</td>
<td>20 kilohms balanced, 10 kilohms unbalanced</td>
</tr>
<tr>
<td><strong>Damping Factor (8 ohms)</strong></td>
<td>1-2-4-8-16 ohms</td>
<td>1-2-4-8-16 ohms</td>
<td>1-2-4-8-16 ohms</td>
</tr>
<tr>
<td><strong>Bridge Mode</strong></td>
<td>1-2-4-8-16 ohms</td>
<td>2-4-8 ohms</td>
<td>1-2-4-8-16 ohms</td>
</tr>
<tr>
<td><strong>AC Line Connectors</strong></td>
<td>USA, UK, European, Australia, India</td>
<td>USA, UK, European, Australia, India</td>
<td>USA, UK, European, Australia, India</td>
</tr>
</tbody>
</table>

**Ventilation**
- Flow through ventilation from front to back
- Flow through ventilation from front to back
- Flow through ventilation from front to back

**Cooling**
- Dual-zone, microprocessor controlled, continuously variable speed fans
- Dual-zone, microprocessor controlled, continuously variable speed fans
- Dual-zone, microprocessor controlled, continuously variable speed fans

**Dimensions**
- 19" Standard 1U rack mount width (19"), 1.5" offset behind front mounting surface
- 19" Standard 1U rack mount width (19"), 1.5" offset behind front mounting surface
- 19" Standard 1U rack mount width (19"), 1.5" offset behind front mounting surface

**Weight**
- Net: 28 pounds (12.7 kg)
- Shipping: 36 pounds (16.3 kg)
- Net: 28 pounds (12.7 kg)
- Shipping: 36 pounds (16.3 kg)
- Net: 28 pounds (12.7 kg)
- Shipping: 36 pounds (16.3 kg)
Figure 6.3 Typical Damping Factor vs. Frequency

6 Specifications

7 AC Power Draw and Thermal Dissipation

I-Tech 5000HD AC Current Draw and Thermal Dissipation:

<table>
<thead>
<tr>
<th>Line Current</th>
<th>Watts Out Per 1A</th>
<th>Thermal Dissipation</th>
</tr>
</thead>
<tbody>
<tr>
<td>120VAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td></td>
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<tr>
<td>1.3</td>
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### 7 AC Power Draw and Thermal Dissipation

#### I-Tech 9000HD AC Current Draw and Thermal Dissipation:

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<th>208VAC</th>
<th>230VAC</th>
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<tbody>
<tr>
<td>1/8th Power Pink Noise</td>
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<tr>
<td>8 Ohms Bridge</td>
<td>5.6</td>
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<td>11.7</td>
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<td>4 Ohms Bridge</td>
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<td>11.5</td>
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<td>1/2 Power Pink Noise</td>
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#### I-Tech 12000HD AC Current Draw and Thermal Dissipation:

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#### Thermal Dissipation

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<td>Idle (awake)</td>
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#### Thermal Dissipation (Btu/hr kcal/hr)

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<td>68.8</td>
<td>2394</td>
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<td>4 Ohms Bridge</td>
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<td>4 Ohms Bridge</td>
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#### Additional Notes

- AC Power Draw and Thermal Dissipation is calculated for the I-Tech HD Series Power Amplifiers.
- Data based on both channels driven.
- Thermal dissipation values are typical under specified operating conditions.
Advanced Features

## 8.1 Protection Systems

Your Crown amplifier provides extensive protection and diagnostic capabilities, including thermal overload protection indicators, high output fuse (CB), AC under/over voltage protection, inrush current limitation, and status LED displays for a number of conditions. These functions give you the confidence you need to maximize your amplifier’s life and reduce overall maintenance costs, and keep your system running smoothly.

### 8.1.1 Thermal Level Control (TLC)

When the amplifier becomes too hot for safe operation, the TLC will engage the input driver transistors. The amplifier will be driven into a much smaller (and lighter) compressor and the clip LED will illuminate. By compressing the input, the amplifier will not be able to deliver its full power output without all the associated heat. This highly advanced design philosophy is unique to Crown and allows the amplifier to maintain superior performance. The degree of compression is proportional to the amount of overheating. This feature allows the show to go on, rather than having the amplifier shut down, and only occurs in extreme situations.

### 8.1.2 Circuit Breaker

In extreme situations power supply overload, this breaker automatically disconnects the power supply without any chance of overheating. This feature allows the show to go on, rather than having the amplifier shut down, and only occurs in extreme situations.

### 8.1.3 Power Factor Correction (PFC)

Inrush limiting, and variable-speed fans with tachometer feedback. Microprocessor monitors fans, and signals an error via System Status LED. PFC allows you to reduce the required power at the output stage. These transformers must be large to operate at 50 to 60 Hz. Typical non-switching power supplies require a much higher frequency, thereby reducing the capacity of your power distribution and coupled noise into other systems. By contrast, switching power supplies can operate at a much higher frequency, thereby reducing transformer size and weight of your power distribution and coupled noise into other systems.

## 8.2 Global Switching Power Supply

The I-Tech HD Series uses a modular power supply system. The Power Supply Module (PSM) within each amplifier will warn anyone if there is a missing or damaged component in the amplifier, and all other amplifiers will be protected.

### 8.3 3rd Generation Class I Circuitry

A new class of high-performance amplifiers is revolutionizing today’s mainstream audio technology. This highly advanced design philosophy is unique to Crown and allows the amplifier to maintain superior performance. The degree of compression is proportional to the amount of overheating. This feature allows the show to go on, rather than having the amplifier shut down, and only occurs in extreme situations.

### 8.4 Color-Coded Rear Overlay

The I-Tech HD Series is designed for easy use, with a color-coded rear overlay that groups similar functions under common colors. This makes it easier to find what you need, and ensures that all parts are easily accessible.

## 9 Appendix A: Network and CobraNet Basics

### 9.1 HiQnet Networks

HiQnet is a network protocol that allows you to control and monitor your amplifier on stage from a computer or laptop. You can send commands to several audio devices at once, and all devices will respond in real-time. HiQnet also allows you to control multiple amplifiers on stage from a single computer, and all devices will respond in real-time.

### 9.2 Global Switching Power Supply

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### 9.4 Color-Coded Rear Overlay

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To communicate between different networks, you need an IP Router. An IP address has four numbers (0-255) separated by periods. "255" means "this is the part of the IP address that is the network ID". For example, if the subnet mask is 255.255.0.0, and the IP address is 192.168.0.127, the network ID is 192.168.0.0. Part of an IP address is the network ID, and the remaining part is the host ID. The host ID is either:

- A subnet number and a device address.
- A device address if there is no subnet in the network.

To identify which part of the IP address is the network ID, you assign a Subnet Mask to the network. A Subnet Mask has four numbers (0-255) separated by periods. "255" means "this is the subnet number the IP address is a part of the network ID". For example, if the subnet mask is 255.255.0.0, the first IP address is 192.168.0.0, and the network ID is 192.168.0.0.

IP Route:
To communicate between different networks, you need an IP Router. Any control data or monitor data that needs to be sent to the other network needs to go through the IP Router. The IP address allows components and computers on multiple networks to communicate with each other through the use of an IP Router as shown in Figure 9.2.

### 9.2.1 Discovery Protocol

Discovery protocol is the process where System Architect finds all the devices on an audio network and lists them on the computer screen. Discovery cannot be done through an IP router, so a Discovery Proxy is required. If you need to control or monitor components that are on another subnet, you will need to specify ONE component on the remote network that can act as a Discovery Proxy. Currently, all networked Crown products except the PIP Lite can act as a Discovery Proxy. To add a Discovery Proxy, select Setup > Network Setup > Proxy addresses. Choose any one of the components listed above, type its IP address in the box under Proxy Addresses, then click the Add button. To remove a Proxy, select the IP address in the list and click the Remove button.

### 9.2.2 Audio Specs

#### Bit depth:
CobraNet can handle sample rates of 48 kHz or 96 kHz. I-Tech HD is switchable between 48 kHz and 96 kHz.

#### Sample rate:
A bundle can carry up to 8 audio channels. Up to 8 bundles can be sent in a 100 Mbps switch. The transmitter and receiver buffers required for reliable transmission are switchable between 256 samples as a default. This gives a network transmission latency of 5.33 mS (256 samples at 1/48 kHz per sample). With 192 kHz, latency is switchable between 1.333, 2.66, and 5.33 mS.

#### Latency:
Latency is the time it takes for a signal to be transmitted from the source to the destination device only. In a switched network, messages go directly to the destination device. In a broadcast network, messages go to the whole network or, if a switched hub (network switch) is used, to the group of components that are connected to the hub that the message either to the whole network or, if a switched hub (network switch) is used, to the configuration device only. In a larger Fast Ethernet network, additional hubs, concentrators, and other network hardware are used to form a larger network, as shown in Figure 9.2.

Today, commercial audio networking cards are 10BaseT- or 100BaseT-X cards, which allow either a wired or a wireless network. The maximum length of cable to CobraNet is the same as for Ethernet: 100 meters over CAT-5 copper cable, 2 kilometers over multimode fiber. Proprietary “Fast Ethernet via Infrared” technology, which reaches up to 50 meters, is used to extend the network. A bundle can carry up to 8 audio channels. Up to 8 bundles can be sent in a 100 Mbps switch. The transmitter and receiver buffers required for reliable transmission are switchable between 256 samples as a default. This gives a network transmission latency of 5.333 mS (256 samples at 1/48 kHz per sample). With 192 kHz, latency is switchable between 1.333, 2.66, and 5.333 mS.

#### 9.2.2.1 Multiple-Network Communication Via an IP Router

**Multiple-Network Communication Via an IP Router**

![Multiple-Network Communication Via an IP Router](http://www.cobranetinfo.com)

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**I-Tech HD Series Power Amplifiers**

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In System Architect, you create audio connections between sending devices (transmitters) and receiving devices (receivers). For example, a mixer could be a transmitter, and a power amp could be a receiver.

You assign each device a Bundle number. The Bundle number indicates which devices are communicating with each other. For example, if you send a mixer's digital audio signal to several power amps, the signal would be a Multicast connection.

You specify a connection as Multicast or Unicast by the delivery address you give it in System Architect. 255 and lower is Multicast (Broadcast); 256 and up is Unicast.

The "Receiver Count" monitor indicates how many devices are receiving the digital audio bundle. The "Active" indicator indicates whether the particular Bundle is being actively transmitted onto the network.

9.2.4 The Conductor

A CobraNet system is coordinated by one audio device in the network called the Conductor. It regulates the CobraNet digital audio traffic on the CobraNet network. That is, the Conductor is the master clock for the rest of the network.

You choose one device to be the network conductor based on a priority scheme. The Conductor indicator will light on the CobraNet device that is serving as the conductor.

The Conductor handles time-division multiplexing and clock recovery on the network. The Conductor periodically broadcasts a well-defined "beat" packet to all components to recover synchronous timing information. The "beat" also specifies which addresses can transmit at certain time slots within the "beat" period.

Each transmitting device is allowed to transmit in a given time slot within the Conductor-controlled isochronous cycle time. The time-slot is determined by the assigned bundle priority. Higher bundle priorities receive lower-numbered positions and are transmitted first.

9.2.5 Switched Networks

A more complex CobraNet network can be built using Ethernet switches. Switches do not simply broadcast each and every packet to all nodes. Instead, they check each incoming data packet to determine its destination and transmit the data only to that destination port. This allows for more network data flow, more Bundles and more audio channels.

In effect, each network port in an audio component has 100MB of bandwidth. The network can be as large as 100MB times the number of ports on the network.

Another advantage of switched networks is "full-duplex" connections between components. A full-duplex link allows simultaneous send and receive over the same Ethernet connection.

Example: Suppose that you are using an IT9000HD with the sensitivity/gain set at 1.4V/37.1 dB. After optimizing the gain structure of the rest of your system, you find that attenuating the output by 10 dB produces the desired loudness. The same output level, with improved signal-to-noise ratio and headroom, can be achieved by using 0 dB of attenuation and setting the amplifier sensitivity/gain to 5.81V/27.0 dB (37 dB – 10 dB = 27 dB).
Reminder to save the form in the original factory pack. A fill of all active service centers in your area can be obtained from Crown Factory Service at http://www.crownaudio.com/service-center/.

10.2.2 Factory Service
Crown does not repair or replace non-serviceable products that are not ready for factory repair. In the camera’s warranty manual, the service center, please contact your local Crown/Amcron representative or our

10.2.4 Packing Instructions
The product should be returned in its original packing material. 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 product’s chassis. The foam-in-place packing was molded to accommodate different chassis depth sizes. If your chassis needs radiation to service your product. We will not be responsible for loss, damage, or provided separately.

10.2.5 Shipping Instructions

The Crown Audio Factory Service phone number is 800-342-6939 or 574.294.8200. Telephone: ELKHART, IN 46517 1718 W MISHAWKA RD. Facsimile: 574.294.8200

10.2.6 Payment of Non-Warranty Repairs
Payment on out-of-warranty repairs must be received in full prior to sending the product to the factory for service. If you do not have the original box, please call Crown at 800.342.6939 or 574.294.8210 for assistance. It is the owner’s responsibility for damaged goods and/or accessories that are sent with your unit.

1. Fill out and include the Crown Audio Factory Service form, in the back of this manual, when returning a Crown product to the factory or authorized service center. The form is needed to service your product. We will not be responsible for loss, damage, or

10.2.3 Factory Service Shipping Instructions
Service may be obtained from an authorized service center. (Contact your local Crown/Amcron representative or our

1. Fill out and include the Crown Audio Factory Service form, in the back of this manual, when returning a Crown product to the factory or authorized service center. The form is needed to service your product. We will not be responsible for loss, damage, or

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10. Warranty Language

11. Warranty

Crown Audio INC., 1718 West Mishawaka Road, Elkhart, Indiana 46517-4095 U.S.A. warrants to the original United States & Canada

Crown Audio is not responsible for any direct, indirect, incidental, special, exemplary, or consequential loss or damage of any kind, or any lost profits, regardless of legal theory, arising out of or related to the product, its use, or the breach of this warranty, even if Crown Audio or its suppliers have been advised of the possibility of such damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion may not apply to you.

5. Enclose the completed Crown Audio Factory Service form with your warranty return. If you do not have the original box, please call Crown at 800.342.6939 or 574.294.8210 for assistance. It is the owner’s responsibility for damaged goods and/or accessories that are sent with your unit.

4. Use the black marker to fill in the SRA number on the shipping carton. Do not send this form separately.

You may return any of your returnable product to your local Crown Audio service center for warranty repair. If you lose your SRA number, please call Crown Audio Inc. at 800.342.6939 or 574.294.8200 and we’ll create the SRA number for you. The SRA number can be used to check the repair status.

Warranty work can only be performed at our

10.2.1 Expiration of Warranty
When the product reaches 50% after the product’s warranty, it will be extended to the new Crown product in the event that a refund is elected, then you must bear the expense of shipping the product to the factory. If you ship your product by ground shipping, and Crown will reimburse you. Send copies of the form, in the back of this manual, when returning a Crown product to the factory or authorized service center. The form is needed to service your product. We will not be responsible for loss, damage, or

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**PRODUCT REGISTRATION**

Online registration is also available at [http://crownweb.crownintl.com/webregistration](http://crownweb.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.                  Fax: 574-294-8329
1718 W Mishawaka Rd
Elkhart IN 46517

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): ___________________________    Fax #: __________________________________

**PRODUCT INFORMATION**

* MODEL
  e.g. IT8000, CDi1000, PCC160

* SERIAL #
  e.g. 800000008

* PURCHASE DATE
  mo/day/yr

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

Comments: ____________________________________________________________________________________

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