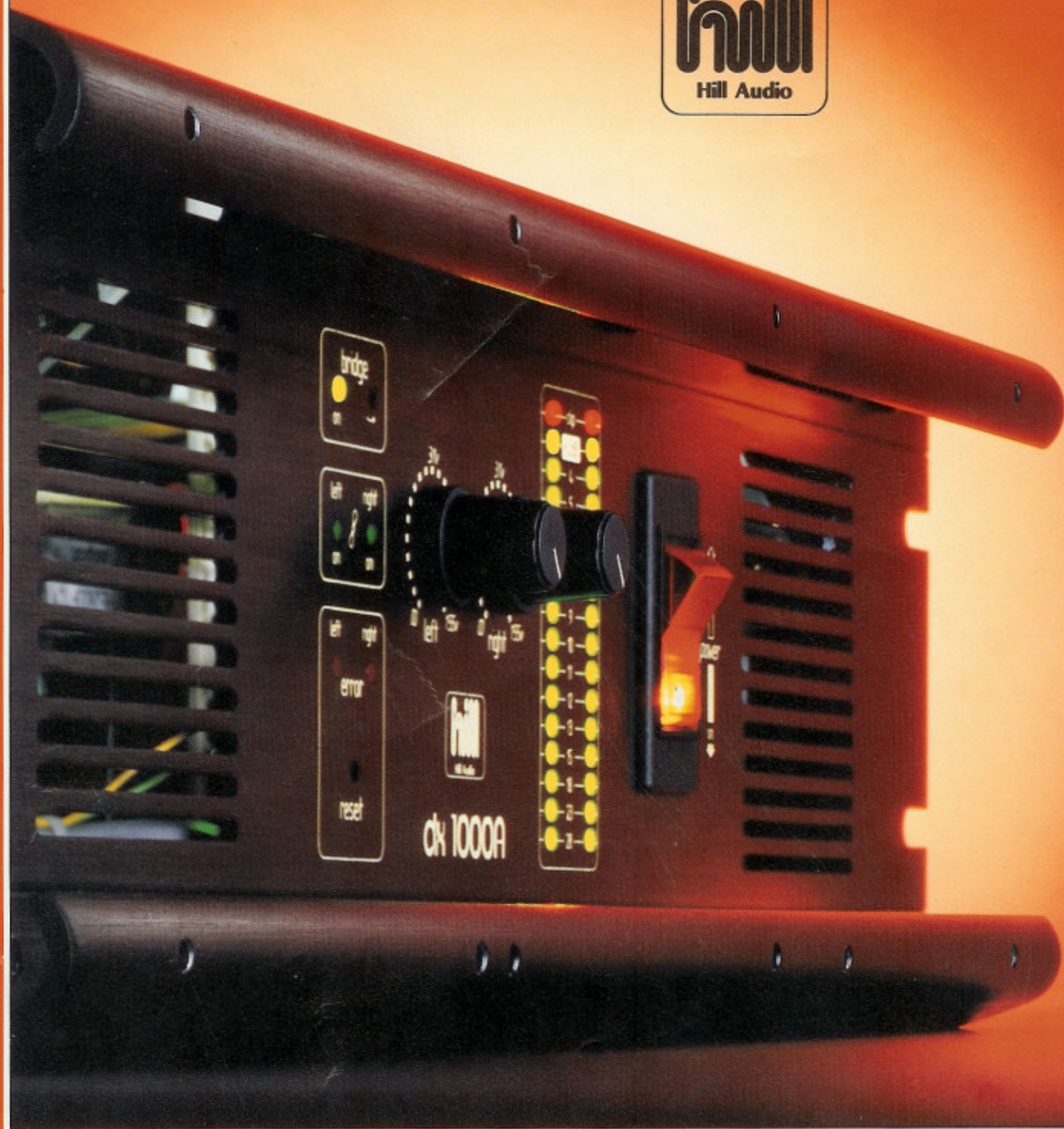


'00' series and '000' series  
power amplifiers



---

## Hill Audio power amplifiers: Total Audio Transparency

---

For 15 years Hill Audio has produced amplifiers that clearly stand apart from all other amplifiers. Our new amplifiers are no exception. As with all Hill Audio amplifiers, the '00' Series and the '000' Series are a uniquely successful blend of advanced power and space technology. Economy. Quality in design, engineering and manufacture. Reliability and efficiency. Sonic excellence and audio transparency.

---

### Quality in design, engineering and manufacture

---

This perfect synthesis of desirable characteristics is not a product of chance – it is based on extensive knowledge gained on several fronts: Knowledge from Hill Audio research and development covering every aspect of amplifier design and manufacture: Knowledge from Hill Audio's direct involvement with the touring and recording industries on an international level: and Knowledge from continued communication with Hill Audio owners. All of this experience and knowledge is part of every Hill Audio design.

The '00' Series and '000' Series of power amplifiers meet all the critical demands made of power amplifiers today.



## Headroom

**Dynamic Headroom** – dynamic headroom can be described as the ability of an amplifier to handle transients without clipping. Transients occur in all music, especially digitally recorded music. To demonstrate dynamic headroom (and current headroom), Hill Audio specifies Burst Power – a 1kHz tone for 10ms every 100ms. This approximates the operation of an amplifier reproducing music.

All Hill Audio amplifiers can exceed twice their rated power into their rated impedance.

---

**exceed twice their rated power**

---

**Current Headroom** – as all speakers suffer impedance changes with reference to changes in frequency, it is not unusual for a speaker to present a load as low as half its rated impedance at certain frequencies. Most amplifiers use a circuit which will limit the amount of current available from the power supply during these dips in impedance which can cause the signal to clip. Hill Audio amplifiers do not have a current limit circuit so that when the load impedance drops, there is sufficient current headroom in the power supply to deliver clean, undistorted energy to the speaker as dictated by the source.

All Hill Audio amplifiers can exceed twice their rated power into half their rated impedance.

## Protection

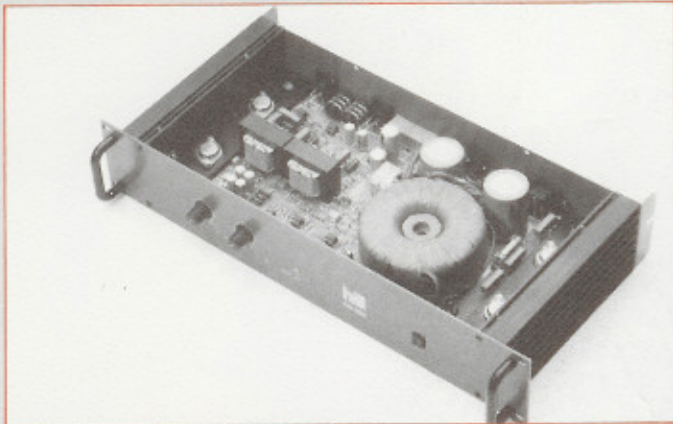
The DC isolated, transformer coupled driver stage technique allows the amplifier circuitry to perform perfectly safely and reliably without any protection devices whatsoever in the audio signal path. This technique has significant sonic benefit – particularly at, and beyond clipping.

---

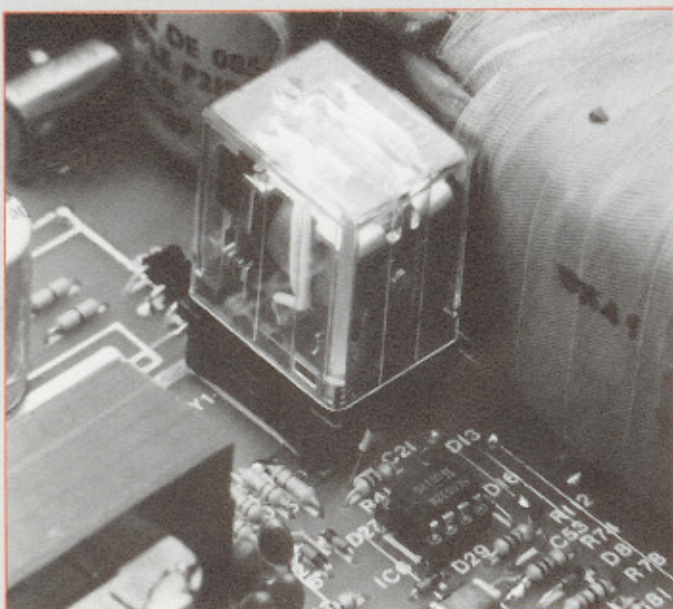
**without any protection circuitry whatsoever  
in the audio signal path**

---

A protection relay, which can be activated by many situations such as short circuit on the outputs, component malfunction, amplifier overheating, persistent overdriving etc., is fitted to all Hill Audio power amplifiers to protect the amplifier and the load. The '000' Series have one relay on each channel and the '00' Series have one relay per amplifier.



DX300



protection relay



## Circuitry

In order to achieve Total Audio Transparency, an amplifier circuit has to produce at the outputs, an exact duplicate of the signal present at the inputs, albeit at a much higher power – neither adding nor subtracting any information contained in the original signal.

Protection circuits for the speaker and the amplifier components must be added to ensure safe operation, yet these circuits must not interfere with the audio chain or they will degrade the signal.

---

### unique transformer coupled driver stage

---

Hill Audio amplifiers use a unique transformer coupled driver stage feeding identical, high speed, ultra-linear NPN output devices connected in a 'Super A' sliding bias configuration. These devices have been selected for their sonic quality, reliability and current handling capability – accurate low frequency reproduction requires a lot of current. This approach exhibits a much more linear response than conventional circuitry using both NPN and PNP devices due to the different transfer characteristics of the PNP devices. The Hill Audio circuitry enables the negative feedback to be kept to a very low 26dB, and in addition, the transformer coupled drive interrupts the DC voltage chain – thereby eliminating all the circumstances in which a conventional amplifier can introduce DC voltage onto a speaker.

## Power Supplies

Hill Audio use toroidal transformers exclusively in all their amplifier power supplies. The toroidal transformer is lighter and smaller than a conventional transformer of similar VA and, in addition, the toroidal transformer offers superb voltage regulation with minimal output impedance, thereby eliminating the need for a complex and potentially unreliable regulated power supply unit.

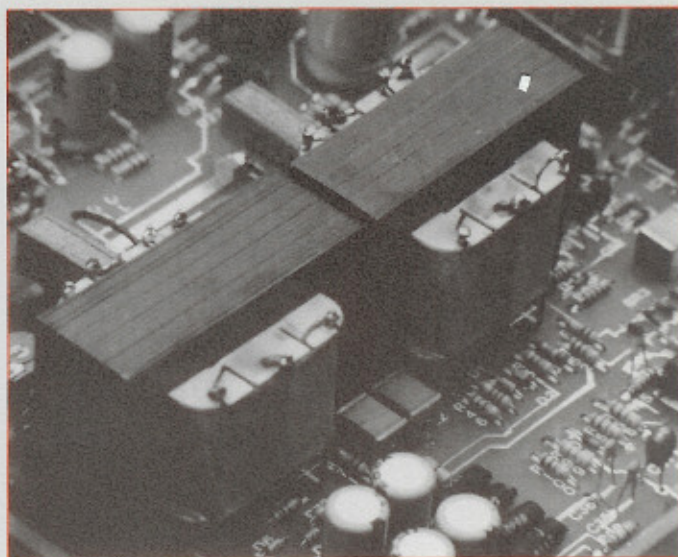
---

### dual power supplies and toroidal transformers

---

All '000' Series amplifiers have dual power supplies featuring a single toroidal core with dual windings.

All '00' Series amplifiers have a single power supply.



driver transformers



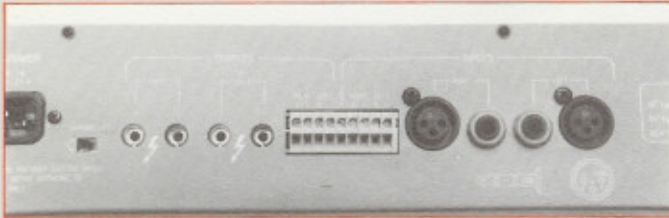
'00' series front panel



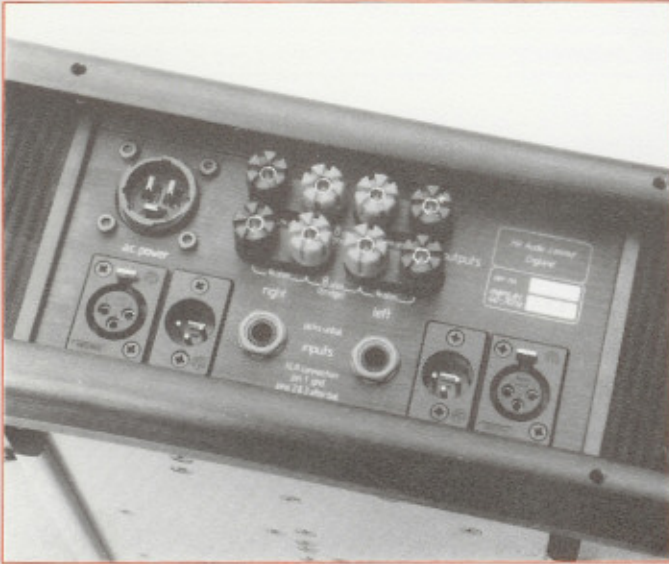
'000' series front panel (fitted optional 16 way LED displays)



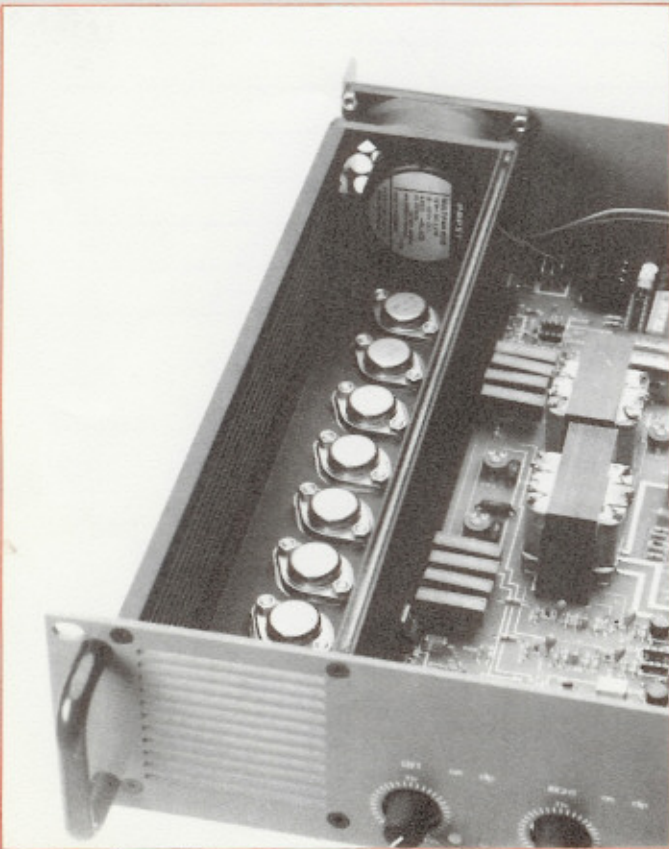
DX3000



'00' series back panel



'000' series back panel



DX1500 DC fan and heatsink

If activated, the relay will isolate the appropriate channel from its power supply (the '00' Series isolates both channels from the power supply). Having the relay isolate the power supply rather than the load prevents any damage from occurring to either the amplifier or the load and as the relay is not in the audio path, it is not degrading the signal in any way. The relay will reset within 3 seconds to allow minimal program interruption. Persistent activation such as a short circuit will hold the relay open. This error mode is indicated by a front panel protect LED and resetting under this type of situation requires either: switching the front panel microswitch ('000') or: power to be removed from the amplifier by turning the AC switch off ('00'), therefore indicating to the operator that a problem exists.

## Cooling

One of the worst enemies of modern electronics is heat, which will reduce the reliability and therefore the longevity of a power amplifier. To overcome heat buildup, all Hill Audio amplifiers utilize custom extruded, external, aluminium heatsinks which efficiently radiate heat away from the power transistors. Unlike most other manufacturers, Hill Audio amplifiers have the heatsinks exposed, rather than hidden inside the amplifier casing, this being a more efficient method of radiating heat. To maximise the heat dissipation characteristics of the heatsinks, the DX300 and DX1500 have all the positive driven devices on one heatsink and all the negative driven devices on the other heatsink which allows any heat developed by the amplifier to be uniformly distributed throughout both heatsinks.

---

### custom extruded aluminium heatsinks and variable speed, servo controlled DC fans

---

All Hill Audio power amplifiers (excluding the DX300) also use variable speed, servo controlled DC fans to force air over the heatsinks to cool more efficiently. The DC fan will start turning slowly when the heatsink temperature reaches 45°C (110°F), thereby maintaining a constant flow of air over the electronics without the associated noise of a fixed speed AC fan. If the heatsink temperature should continued to rise, the speed of the fan will increase to maximum at 65°C (149°F) to provide adequate air flow to control the temperature of the amplifier.

Should the heatsink temperature exceed 80°C (175°F), the temperature sensing circuit will trip the protection relay; turning off the amplifier but leaving the fans running.

# Specifications

		DX300	DX800	DX1500	DX1000	DX2000	DX3000	DX1000A
<b>OUTPUT POWER (WATTS RMS)</b>								
<b>PER CHANNEL, BOTH CHANNELS DRIVEN</b>								
Continuous (20Hz-20kHz, -0.5dB)	8Ω	<b>200</b>	250	300	375	400	550	500
	4Ω	—	<b>400</b>	500	<b>600</b>	650	900	<b>800</b>
	2Ω	—	—	<b>750</b>	—	<b>1000</b>	<b>1500</b>	—
<b>BURST*</b>								
(1kHz, 10ms/100ms, single channel)		400(8Ω)	800(4Ω)	1500(2Ω)	1200(4Ω)	2000(2Ω)	3000(2Ω)	1600(4Ω)
		450(4Ω)	900(2Ω)	1600(1Ω)	1350(2Ω)	2250(1Ω)	3375(1Ω)	1800(2Ω)
<b>BRIDGE MONO</b>								
Continuous (20Hz-20kHz, -0.5dB)	8Ω	—	800	1000	1200	1300	1800	1600
	4Ω	—	—	1500	—	2000	3000	—
*Burst Power is an indication of the amplifiers ability to handle music transients and tolerate deviations in nominal speaker impedance.								
<b>DISTORTION</b>								
250mW to rated power at 8Ω								
IMD SMPTE (60Hz/7kHz 4:1)		<0.01%	<0.01%	<0.01%	<0.002%	<0.002%	<0.002%	<0.002%
THD+N (1kHz)		<0.01%	<0.01%	<0.01%	<0.003%	<0.003%	<0.003%	<0.003%
THD+N (20Hz-20kHz) DIN		<0.02%	<0.02%	<0.02%	<0.02%	<0.02%	<0.02%	<0.02%
<b>DAMPING FACTOR</b>								
(at 8Ω)	20Hz to 1kHz	250	350	600	600	2000	2000	600
	1kHz to 20kHz	125	175	300	300	1000	1000	300
<b>SLEW RATE</b>								
	(V/μsec)	>40	>40	>40	>45	>45	>60	>60
<b>COOLING</b>								
	heatsinks	2	1	2	2	4	4	2
	variable speed DC fans	—	1x3"	2x3"	1x5"	2x5"	2x5"	1x5"
<b>SIZE</b>								
	rack spaces (units)	2	2	2	3	3	3	3
	front to back (inches)	8.5	13	13	12	18	18	12
<b>WEIGHT</b>								
	Kgs	7	13	15	17	35	36	18
	Lbs	16	29	34	38	78	81	40
<b>DEVICES (total)</b>								
		4	8	16	16	32	40	20
<b>POWER REQUIREMENTS (Music)</b>								
	120VAC, 60Hz	2.5A	5A	10A	8A	14A	20A	10A
	240VAC, 50Hz	1.25A	2.5A	5A	4A	7A	10A	5A

## TYPICAL SPECIFICATIONS '00' Series and '000' Series

<b>DYNAMIC HEADROOM</b>	3dB
<b>FREQUENCY RESPONSE</b>	+0dB, -0.5dB (20Hz-20kHz)
<b>NOISE</b>	better than -100dB
<b>RISE TIME</b>	3 μ sec
<b>SENSITIVITY</b>	1.55V (+6dBm) V RMS for max rated power
<b>INPUT IMPEDANCE</b>	10k unbalanced 20k balanced

\*'000' amplifiers may be supplied with AC fans until early 1987.

Hill Audio Ltd. reserves the right to alter design and specifications of its products without prior notice.

### Manufactured in the UK

Hill Audio Ltd., Hollingbourne House, Hollingbourne, Kent ME17 1QJ England.  
(062 780) 555 Tlx 966641 HILL

### U.S Sales Office

Hill Audio Inc., 5002B N. Royal Atlanta Dr. Tucker, GA 30084 USA.  
(404) 934 1851 Tlx 293827 HLAD.

Represented by: