

OWNER'S MANUAL



Ph3D



YOUR SUTHERLAND Ph3D

A note from designer RON SUTHERLAND:

Thank you for choosing the Ph3D for your listening system. If you are the kind of person that sees aesthetic beauty in simplicity and no-frills functionality, you are going to appreciate the design choices of this unit. The Ph3D is a slice of the Ph.D and a slice of the PH-1P, two of my earlier phono preamp designs. Each slice was carefully chosen to deliver the essence of true high-end performance in an innovative package. Enjoy the elegance of the Ph3D. But most importantly, enjoy how it sings in your system.

Happy listening,

Ron

A brief look at just some of the Ph3D's features:

- Complete isolation from the noisy AC power line
- No chasing down elusive ground loops
- Easy-to-find, easy-to-buy, easy-to-replace D-cell battery power supply
- Low-battery indicator light
- Built-to-last, cold-roll steel with baked-on epoxy powder coating
- Complete electrostatic and magnetic shielding
- Easy internal access with stainless steel thumb-screws
- Convenient selection of five cartridge-loading values
- Convenient selection of five gain settings
- Configured with gold-plated headers and shunts
- High contact pressure, large contact surface
- No cheap DIP rocker switches
- Audiophile grade components, including Wima polypropylene/film capacitors, Dale/Vishay CCF-55 metal film resistors, double-sided FR-4 fiberglass circuit board, gold-plated RCA jacks and gold-plated configuration setting
- Dual mono circuit board layout for best channel separation (You get exactly the same layout for each channel – check out the photos)

Design Philosophy

An amplifier does not make the input signal "bigger." Instead, it uses the input signal to control the delivery of power from a power supply. So the increased size of the output signal comes entirely from the power supply. The quality and purity of the power supply is an essential foundation for creating a high-quality output signal. Still, in many designs, the power supply is given only casual consideration.

Consider that one of the noisiest components in your home stereo is the incoming AC power. Even if it were delivered to your home as an idealized 60 Hz sine wave, it would not stay that way long. One of the biggest pollutants is the audio power amplifier. It does not draw current from the power line evenly. There is a large current spike drawn when the sine wave reaches its voltage extremes, while at other times current draw is essentially zero. High-frequency harmonics and noise are introduced into the same power line used for sensitive phono preamplification. There are, of course, many other factors that contribute to power line distortion and noise.

While several preamplifier designs have aimed to isolate the AC power line with varying degrees of success, ultimate power supply purity cannot be achieved without absolute elimination of the AC power line. In the case of the Sutherland Ph3D, there is no connection to the AC power line at all – period. Instead, the power for the Ph3D is 16 alkaline D cells. In this application, the batteries have a useable lifetime of 1,200 operating hours. As they age, low-power supply impedance is maintained by high-value storage capacitance. And unlike designs that use rechargeable batteries, the Ph3D is not compromised and encumbered with battery-charging circuitry. In fact, one of the surprising features of the Ph3D is the absence of ANY power connections on the back panel. It is totally isolated from any outside power noise. Unlike the much more expensive Ph.D., the Ph3D does not have automatic power management. Power is controlled the old-fashioned way, with a manual toggle switch. However, if you remember to turn off your Ph3D after each listening session, you'll enjoy about 1,200 hours of effective use before having to change the batteries, which is a simple process.

In designing the Ph3D, Sutherland concentrated on eliminating needless power consumption. So as very little power is used, very little heat is generated within the components. There is essentially no temperature rise and no need for "warm-up" time. The design also has very little or no DC voltage across the signal-carrying capacitors, so that dielectric forming is not an issue.

INDICATORS

The red front panel LED indicates power on. As the battery voltage decreases with usage, it will get dimmer. When the voltage gets low enough that performance is compromised, the LED will go out abruptly.



The red front panel LED indicates power on.

CONFIGURATION

Conventional designs use inexpensive, low-quality computer rocker switches. Their design is inadequate for configuring the low-level signal from a phono cartridge. To offer the user a wide range of configurations while maintaining signal integrity, the Ph3D uses gold-plated header pins and gold-plated shunts. They offer high-pressure and large surface area contacts.

Each channel has two configuration headers: One to select cartridge loading and another to select gain. When changing configuration, be sure to set each channel to the same value. Options are printed directly on the circuit board next to the configuration headers.

GAIN ADJUSTMENT

There are five available gain settings. Gain is set using the supplied, gold-plated shunts. There is a gain setting header block for each channel. Position the shunt to the desired gain value. Be sure to set the gain of each channel to the same value.

CARTRIDGE LOADING ADJUSTMENT

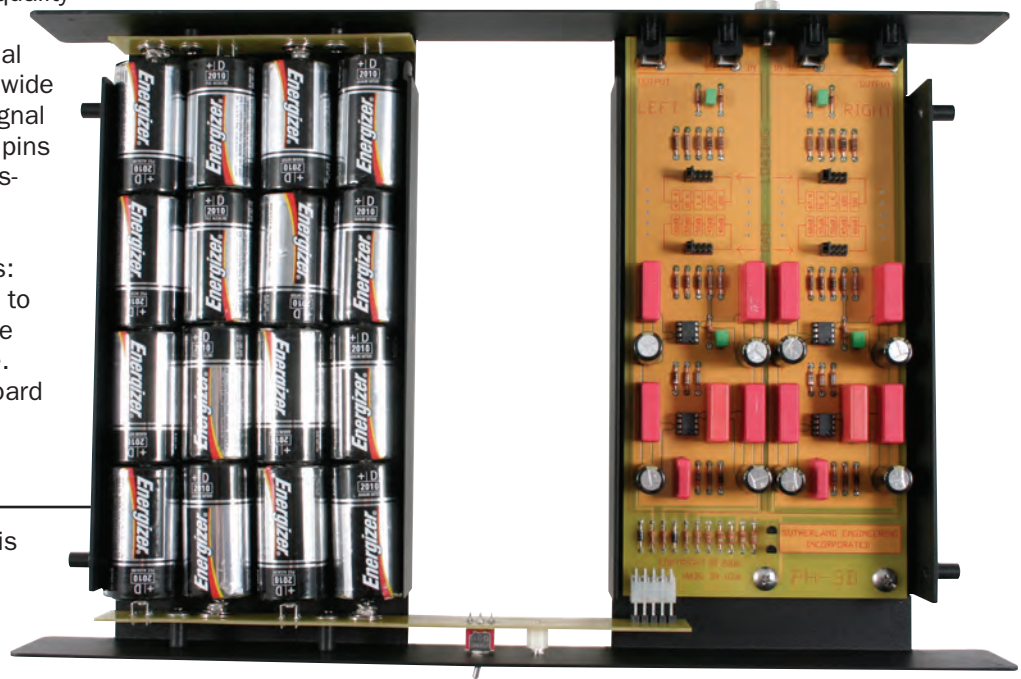
There are five available loading settings. Loading is set using the supplied, gold-plated shunts. There is a load setting header block for each channel. Position the shunt to the desired loading value. Be sure to set the loading of each channel to the same value.

BATTERIES

Your Ph3D is powered by 16 D-cell alkaline batteries. They have a nominal useful life in this application of about 1,200 hours. The front panel red LED functions as both a Power-ON indicator and a battery condition indicator. As the batteries discharge, their voltage will decrease. When the voltage has decreased to a level that will impair the performance of the Ph3D, the LED will not illuminate, and it is time to replace the batteries.

It is recommended that the batteries be replaced when either the LED does not illuminate or once a year, whichever occurs first. Replace all batteries at the same time with all batteries of the same type.

The negative battery is placed facing the springs. If batteries are installed incorrectly, protection circuitry will prevent any damage to your Ph3D's circuitry.



Supplied loading values:

- 100 ohms
- 200 ohms
- 1k ohms
- 10k ohms
- 47k ohms

Supplied gain values:

- 40 dB
- 45 dB
- 50 dB
- 55 dB
- 60 dB



Your Ph3D is powered by 16 D-cell alkaline batteries.



The rear panel includes inputs, outputs and a ground lug.

Ph3D SPECIFICATIONS

Gain Settings

40 dB
45 dB
50 dB
55 dB
60 dB

Cartridge Loading

100 ohms
200 ohms
1k ohms
10k ohms
47k ohms

Size

17" wide
2" high
12" deep

Weight (without batteries installed)

9 lbs. net
12 lbs. shipping

Power Requirements

16 Alkaline 'D' cells

Battery Life

1,200 hours
(actual power-on time)

Ph3D

Sutherland Engineering products, like those of AcousTech Electronics, are designed by Ron Sutherland for exclusive distribution through 2 Channel Distribution



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