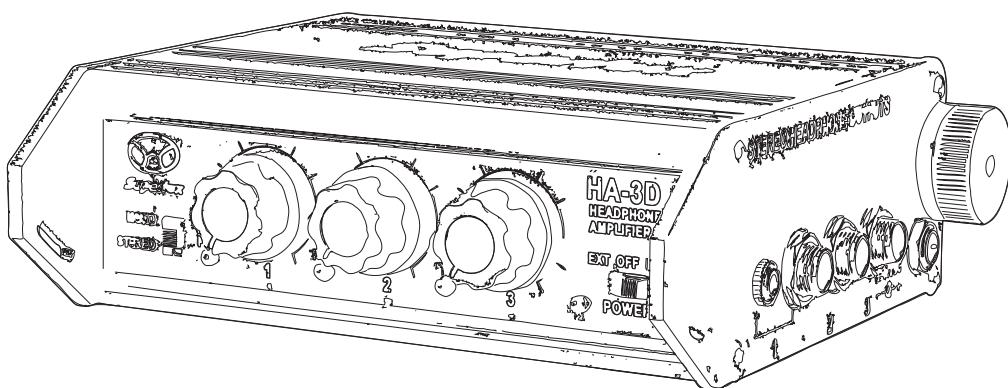


Superlux®

HA3D

Headphones Distribution Amplifier
User Guide and Technical Information



General Description

Superlux HA3D is a portable, stereo headphone amplifier designed for demanding and critical audio monitoring. This audiophile-quality headphone amp is ideal for adding headphone feeds for portable, studio, and audio enthusiast applications.

The HA3D provides 3 independent headphone feeds from balanced or unbalanced line sources. Each headphone output is controlled by the associated level control, equipped with independent peak LED, and 1/4-inch output connector. With its extended bandwidth and high current/voltage drive capability the HA3D can drive headphones of various impedances to high levels with very low distortion, important for monitoring in high SPL environments. It can be powered from two-AA batteries or external DC.

The HA3D will provide years of superb audio performance under the most demanding field conditions.

Features

- 3 independent headphone outputs with individual volume controls.
- Frequency response from 10 Hz to 50 kHz.
- $\geq 120\text{dB}$ dynamic range.
- High power driving capability, drives headphones to high levels with very low distortion.
- Individual peak indicators show overload of each headphone feed.
- Master Stereo / Mono switch.

Dual Power

- Internal battery power (2 x AA) for convenient, low cost power.
- Long battery life - more than 10 hours (Alkaline batteries, @ nominal drive level).
- External 5-17VDC powering.

Flexible Inputs / outputs

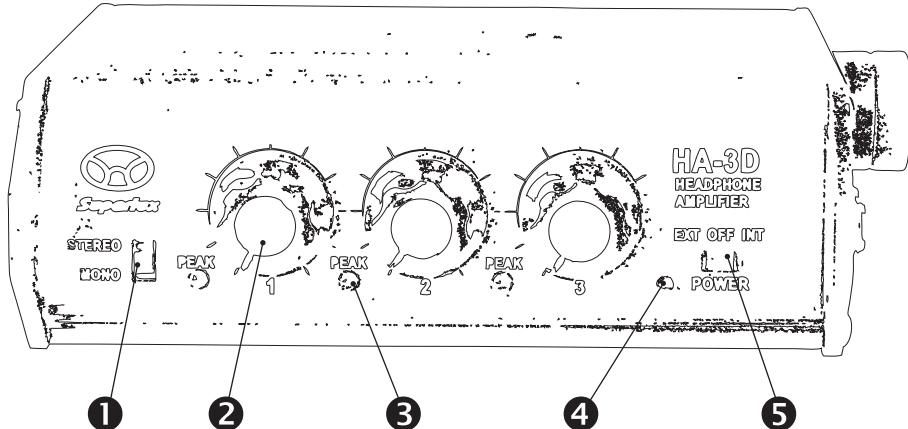
- 2 balanced XLR line level inputs or unbalanced 1/4-inch and 1/8-inch stereo inputs
- Loop output to connect additional HA3D's in series for extra headphone outputs.

Durable Mechanical construction

- High strength aluminum chassis withstands challenging field conditions.
- Strap loops on side panels for easy mounting or wearing.
- Panel-mounted connectors for strength and reliability.
- Easy access battery compartment for quick battery changes.

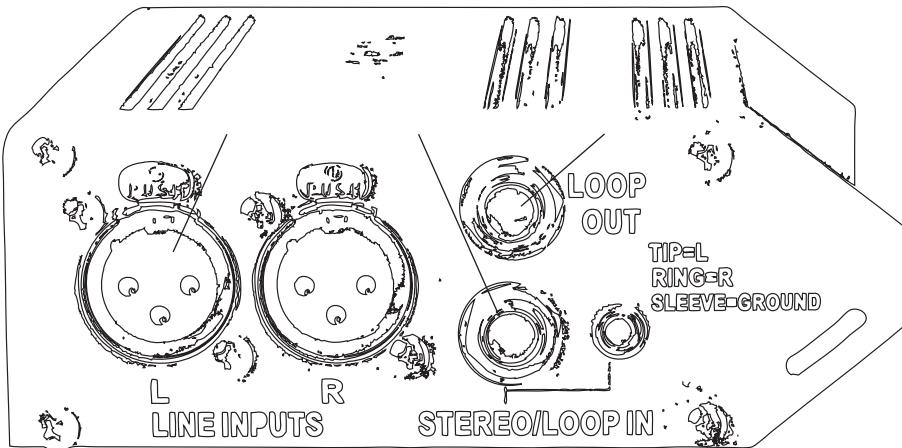
Specifications

Frequency Response:	10Hz-50 kHz, +/-1.0dB, any input to any output, gain control set to 50%		
Voltage Gain:	Gain	Loop Out	Headphone output (1,2,3)
	Bal. Line	-3 dB	34dB
	HP Input	-1 dB	35 dB
Output Clipping Level:	<p>+18dBu minimum with 600 ohm load +16dBu minimum with 300 ohm load</p>		
Headphone Output impedance:	200 ohms		
Input Clipping Level:	XLR:+24 dBu		
Dynamic Range:	≥ 120 dB (Balanced line inputs)		
THD + Noise:	0.03% maximum(from 10Hz – 22kHz @ +10 dBu input and output level, 300 ohm load,10 Hz – 22kHz filter bandwidth)		
Inputs:	<p>XLR: electronically balanced, 22k ohm input impedance 1/4-inch unbalanced: 9.1k ohm impedance 1/8-inch unbalanced: 9.1k ohm impedance Note: only one set of inputs (balanced or unbalanced) should be connected at a time</p>		
Loop Output:	Unbalanced, 200 ohm output impedance		
Internal Voltage Rails	$\pm 15V$, regulated		
Power:	<p>Internal: 2 AA alkaline batteries, 12 hours life typical driving one 75 ohm headset External: 5-17 VDC via threaded coaxial connector,(5.5mm outer diameter, 2.1 mm inner diameter), pin positive, sleeve negative. Voltages above 17 VDC cause no damage to unit, but will open an internal poly fuse. Poly fuse will reset when voltage is removed.</p>		
Power LED:	Green indicates power and good battery.Red indicates power with low batteries. LED turns red when approximately 4 hours of battery life remain		
Operating Temperature Range:	0 to 70°C 32 to 160°F		
Dimensions:	43 mm × 94mm × 140mm (h × w × d) (1.7" × 3.7" × 5.55")		
Weight: (unit only)	0.56 kg, 1.24 lbs		
Included Accessories:	1/4-inch to 1/8-inch, 1M lenght, Tip-Ring-Sleeve interconnect cable Rubber feet (4)		



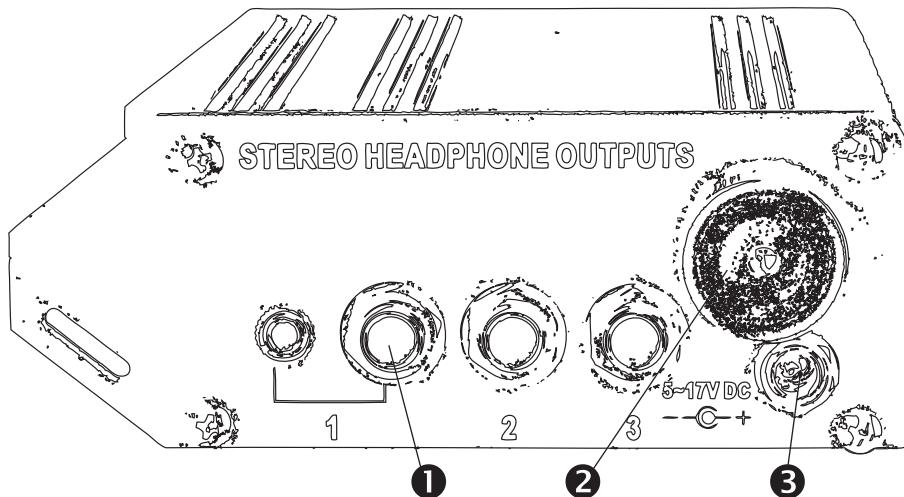
Front Panel

1. Stereo/Mono Switch
Sums stereo and 2 channels audio Program to mono for mono, or single muff headphone monitoring.
2. Headphone Gain
Controls Volume of each headphone output.
3. Headphone Peak LED
Illuminates 3 dB before clipping to indicate onset of headphone distortion.
4. POWER LED
Bi-color LED illuminates green when the unit is powered and changes to red when approximately 4 hours of battery life remain.
5. POWER Switch
Powers the unit from either Internal batteries, or External DC. Seamless switchover from each power source.



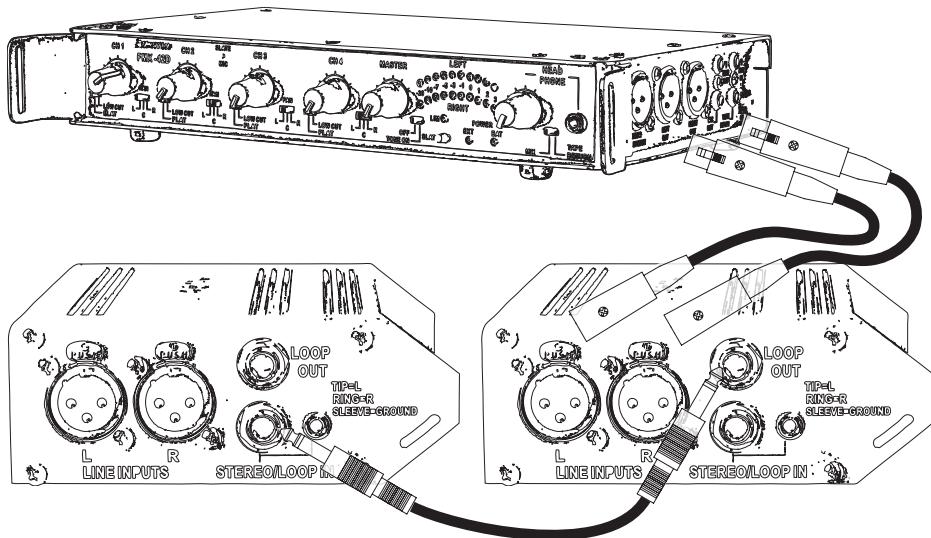
Input Panel connectors

- 1.XLR Line Inputs
Line level, balanced inputs.
- 2.1/4- Inch and 1/8-inch Tape 'Level Inputs
Unbalanced, stereo, Tip-Ring-Sleeve inputs.
3. Loop Output
Output connection enabling interconnection of multiple HA3D's. Loop Out is T-R-S, unbalanced stereo connection.



Output Panel Connectors

1. HEADPHONE OUTPUTS
Panel mounted headphone jack for each output. Output 1 has 1/8-inch jack in parallel with 1/4-inch jack
2. BATTERY Compartment
Requires two AA batteries for operation. Insert positive (+) end of battery first
3. DC Input
Locking coaxial DC input accepts voltages from 5 to 17 VDC.

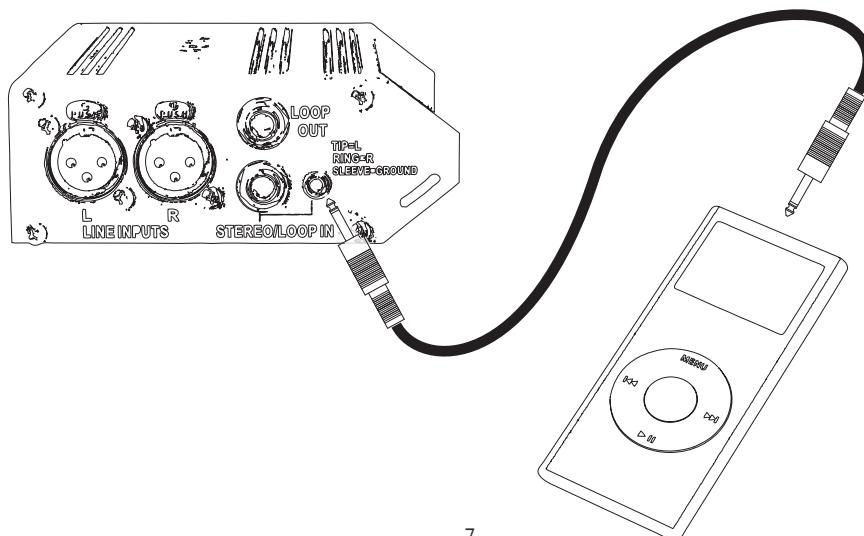


Connection Diagrams

The HA3D can be used in a variety of headphone applications. Below are a few examples of interconnection setups using the HA3D.

One or more units can be added and "daisy-chained" for additional headphone feeds from a mixing console. Loop additional HA3D amplifiers with the included Link cable.

The headphone outputs of portable audio electronics can be connected to the HA3D for additional headphone feeds. The popular 1/4-inch to 1/8-inch can be used to connect the line-out or headphone output to the HA3D.



Operational Notes

Headphone outputs

The HA3D uses independent drive circuits for each of its three isolated headphone circuits. Because of the bi-polar power supply, the HA3D can provide high levels of power to each headphone feed.

The HA3D is capable of driving headphones to harmful sound pressure levels. Take precautions to prevent hearing damage.

Powering the HA3D

The HA3D operates on two AA alkaline cells for approximately 8 hours into 56 ohm head- phones (at nominal levels). The audio performance of the HA3D does not vary throughout the life of the batteries.

Several factors affect battery life including: battery chemistry, ambient temperature of operation, headphone impedances, headphone drive levels, and the number of headphones in use. The chart below can be used as a starting point to estimate battery life. Experimentation is recommended to determine battery life for each individual setup.

Battery Type	Operational Characteristics	Battery Life
Popular alkaline	powered, idle	Approx. 15 hrs.
Popular alkaline	driving 1, 56 ohm headphones at nominal level	Approx. 8 hrs.
Popular alkaline	driving 3, 56 ohm headphones at high levels	Approx. 8 hrs.

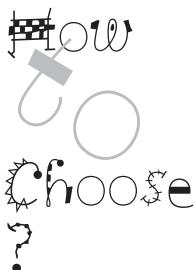
(Test conditions: 25°C)

Battery Information:

Superlux recommends use alkaline or lithium batteries with HA3D for their higher capacity. Lithium provides more capacity/longer operation hours, better low-temperature ability, and lighter weight.

Nickel-Cadmium batteries are not recommended in the HA3D since these batteries have lower capacity per cell than other types and will result in very short service, and the benefit of higher rush current from these batteries are not needed to operate HA3D.

Headphones



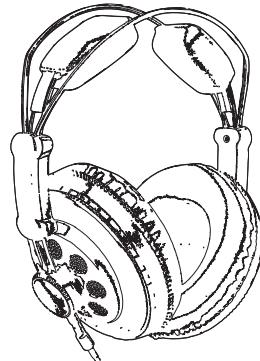
Superlux provides wide selection of headphones: Around the ears, and in-ear; open, semi-open, and closed. Various sound styles for user to choose according to their preference.

A good headphones shall:

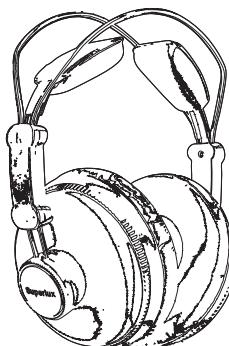
1. Sound quality, wide and uniform frequency response.
2. Clarity, high sensitivity and low distortion.
3. Comfortable, light weight and optimised pressure, around the ear and good head rests.
4. Sound isolation for closed type. Provides sound isolation for in the field application, or in studio for fold-back monitoring.
5. Easy to use, auto adjust to the best wearing position.
6. Durable, even handle brutally
7. Convenience, easily change plug adapter, easy to change long and short cable, cable extension capability, carrying pouch...

Superlux design, manufacture, and test the headphones with above considerations. The cables can sustained 35,000 times twisting test. Patent head bend structure provides very strong support, with very light weight for wearing comfort.

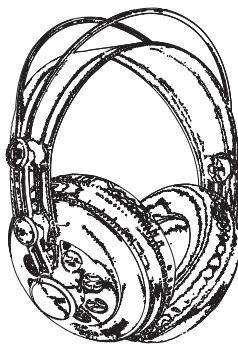
The HD668B is a semi-open dynamic headphones. Sound quality meets the demanding professional recording studio. Patented sturdy struction provides long-lasting durability even in chanllenge condition. Light weight and optimised mechanical pressure provides long-term wearing comfortness. Equipped with 2 straight cables, short one is 1 meter long for palm size sound source on-the-move applications. Long one is 3 meter long, for professional monitoring applications. Inter-connect both cables, for even more distant requiries.



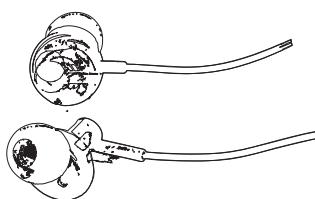
The HD669 is a closed dynamic headphones. Sound quality meets the demanding professional recording studio. Patented sturdy struction provides long-lasting durability even in chanllenge condition. Light weight and optimised mechanical pressure provides long-term wearing comfortness. Same cables as HD668B for convenience.

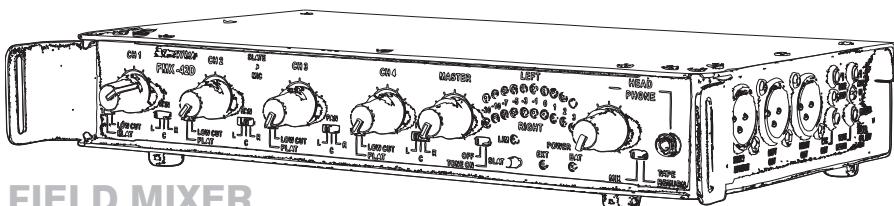


The HD681 is a semi-open headphones with 3 sound styles: Presence, Flat, and Bass enhanced. These sound style reflects different sound stage impression: Presence sound puts the listener on the stage as if the performers are next to the listener. Flat sound puts the listener at the front row, and the whole stage is up front to the listener. Bass-enhanced sound puts the listener in the hall as a happy audience.



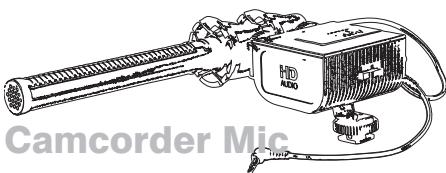
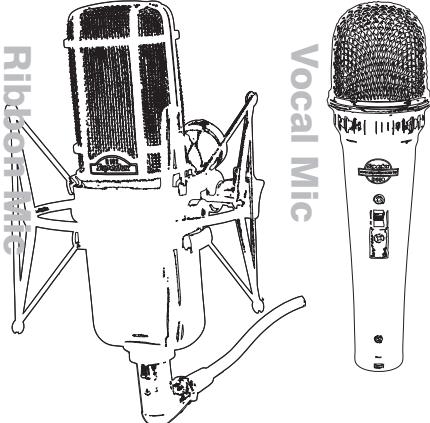
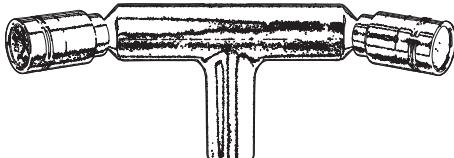
The HD381 is a in-ear style headphones. There're also 3 sound styles as HD681, and HD662: Presence, Flat, and Bass enhanced. User can easily fit himself/ herself with the sound style he/she preferred. Not only the sound style but also the ear plug adapter with different sizes to fit as well.





FIELD MIXER

Stereo condenser mic



Camcorder Mic

Related Products

While the public enjoy the music through headphones and speakers, making music/recording/video taping seems far away from the daily living.

Low cost, yet high performance audio recording and video "taping" camcorder are becoming popular with very easy file transfer through flash card reading. Powerful computer hardware and software allow efficient audio and video editing in every home.

Home video and corporate video grows with popular on-line services such as Podcast and YouTube, everyone could be the broadcaster and director that produce high quality media that transmit to half globe away in seconds.

Superlux provides the same high quality yet humble price audio products for professionals as well as entry level.

There are FMX42D, a 4 channels field mixer, with battery and DC operation. Phantom power supply to professional microphones. Balanced output for professional equipments, and un-balanced output for amateur/consumer equipments.

There are extended line of microphones: professional studio condenser microphones, strong and durable dynamic microphones, and camcorder microphones.

For applications such as home video, school events, concerts, church services, corporate training, seminar, promotion...

Find it online at superlux.tw

LIMITED WARRANTY

Superlux Enterprise warrants all materials and workmanship under use as instructed by the user's manual of this product for a period of one year from the original date of purchase. Warranty period might be different by each area. Please contact your local dealer for more information. If any defects are found in the materials or workmanship or if the product fails to function properly during the applicable warranty period, Superlux Enterprise, at its option, will repair or replace the product. This warranty applies only to equipment sold and delivered by Superlux Enterprise's authorized distributors or dealers. However, the following are not covered:

Damage caused by accident, misuse, abuse, product modification or neglect; damage occurring during shipment; damage resulting from failure to follow instructions contained in your Instruction manual; damage resulting from the performance of repairs by someone not authorized by Superlux; claims based upon any misrepresentations by the seller; any Superlux product on which the serial number has been defaced, modified or removed.

Service and repairs of Superlux products are to be performed only at a factory-authorized facility or authorized distributors or dealers. Unauthorized service, repairs, or modification will void this warranty. To obtain repairs under warranty, you must have a copy of your sales receipt from the authorized Superlux dealer where you purchased the product. It is necessary to establish purchase date and determine whether your Superlux product is within the warranty period. To obtain factory-authorized service, please contact authorized distributors, dealers or mail to sales@superlux.com.tw.

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