SOUND DEVICES

HX-3 Headphone Distribution Amplifier

User Guide and Technical Information

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General Description

The HX-3 from Sound Devices is a portable, stereo headphone amplifier designed for critical audio monitoring. The audiophile-quality headphone amp is ideal for adding headphone feeds for portable and studio applications.

The HX-3 provides three independent headphone feeds from balanced or unbalanced, line sources. Each headphone output has its own level control, peak LED, and ¼-inch output connector. With its extended bandwidth and high drive capability the HX-3 can drive headphones of various impedances to high levels with very low distortion, important for monitoring in high SPL environments. It is powered from two-AA batteries or external DC.

The HX-3 will provide years of superb audio performance under the most punishing field conditions.

Features

High Performance Headphone Amplifier

- Three independent headphone outputs with individual gain controls.
- Dynamic range exceeding 120 dB.
- 10 Hz to 50 kHz audio bandwidth.
- Capable of driving headphones to high levels with very low distortion.
- Peak indicators show overload of each headphone feed.
- Stereo / mono switch.

Flexible Inputs / Outputs

- Two balanced XLR line level inputs
- Unbalanced ¼-inch and 1/8-inch stereo inputs.
- Loop output to connect additional HX-3s in series for extra headphone outputs.

Flexible Powering

- Internal battery power (two-AA) for convenient, low cost power.
- Excellent battery life >10 hours (nominal drive level with alkaline batteries).
- External 5-17 VDC powering.

Durable Mechanical Construction

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

Specifications

<table>
<tr><td>Frequency Response:</td><td>10 Hz - 50 kHz, +/- 1.0 dB, any input to any output, gain controls set to 50%</td></tr>
<tr><td>Voltage Gain:</td><td><table><tr><th>Gain</th><th>Loop Out</th><th>Headphone Output (1,2,3)</th></tr><tr><td>Bal. Line</td><td>-3 dB</td><td>34 dB</td></tr><tr><td>HP Input</td><td>-1 dB</td><td>35 dB</td></tr></table></td></tr>
<tr><td>Output Clipping Level:</td><td>+18 dBu minimum with 600 ohm load
+16 dB minimum with 300 ohm load</td></tr>
<tr><td>Headphone Output Impedance:</td><td>200 ohms</td></tr>
<tr><td>Input Clipping Level:</td><td>XLR: +24 dBu minimum

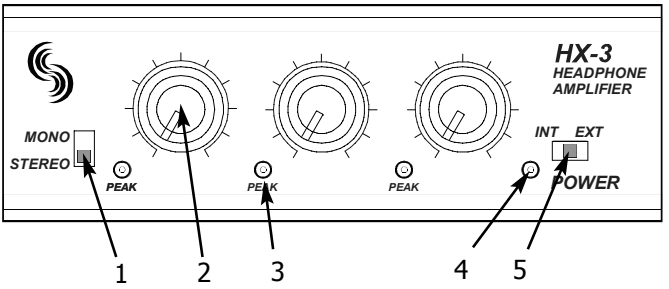
1/4-inch and 1/8-inch inputs: +22 dBu minimum</td></tr>
<tr><td>Dynamic Range (balanced line inputs):</td><td>120 dB minimum</td></tr>
<tr><td>THD + Noise:</td><td>0.03% maximum
(from 10 Hz to 22 kHz @ +10 dBu input and output level, 300 ohm load, 10 Hz - 22 kHz filter bandwidth)</td></tr>
<tr><td>Inputs:</td><td>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.</td></tr>
<tr><td>Loop Output:</td><td>Unbalanced, 200 ohm output impedance</td></tr>
<tr><td>Internal Voltage Rails:</td><td>+15 V and -15 V, regulated</td></tr>
<tr><td>Power:</td><td>Internal: 2 AA alkaline batteries, XX hours life typical with nominal

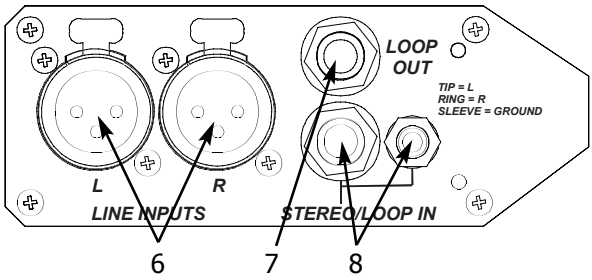
External: 5 - 17 VDC via threaded coaxial connector (5.5 mm outer diameter, 2.1 mm inner diameter), pin positive, sleeve negative. Voltages above 17 VDC cause no damage to unit, but will open an internal poly fuse. Poly fuse will reset when voltage is removed.</td></tr>
<tr><td>Power LED:</td><td>Green indicates power and good battery. Red indicates power with low batteries. LED turns red when approximately 4 hours of battery life remain.</td></tr>
<tr><td>Operating Temperature Range:</td><td>0 to 70 degrees C
32 to 160 degrees F</td></tr>
<tr><td>Dimensions:</td><td>43 mm x 94 mm x 140 mm (h x w x d)
(1.7" x 3.7" x 5.5")</td></tr>
<tr><td>Weight (unit only):</td><td>0.56 kg
1.24 lbs.</td></tr>
<tr><td>Included Accessories</td><td>1/4-inch to 1/8-inch Tip-Ring-Sleeve interconnect cable
Rubber feet (4)
Locking DC plug</td></tr>
</table>

Front Panel Controls



1. **Stereo/Mono Switch**
   Sums stereo or two-channel inputs to mono for mono 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 four 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

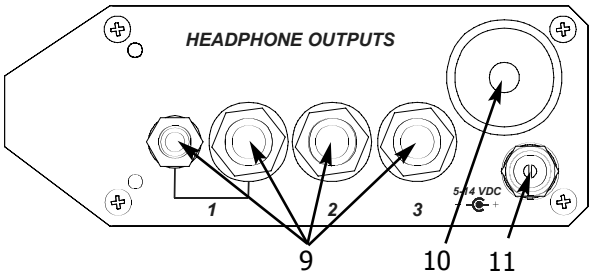


6. XLR Line Inputs
Line level, electronically-balanced inputs.

7. Loop Output
Output connection enabling interconnection of multiple HX-3s. Loop Out is Tip-Ring-Sleeve, unbalanced, stereo connection. Connect to loop input to cascade units.

8. 1/4-inch and 1/8-inch Stereo Inputs
Unbalanced, stereo, Tip-Ring-Sleeve inputs. Connect to output of another devices headphone output, tape deck output, etc.

Output Panel Connectors



9. HEADPHONE OUTPUTS
Panel mounted headphone jack for each output. Output #1 has an 1/8-inch jack in parallel with the 1/4-inch jack.

10. BATTERY Compartment
Requires two AA batteries for operation. Insert positive (+) end of battery first.

11. DC Input
Locking coaxial DC input accepts voltages from 5 to 17 VDC. Center pin is positive.

Operational Notes

Headphone Outputs

Because the HX-3 uses independent drive circuits for each of its three headphone circuits, headphones of various impedances can be connected the the HX-3 without interaction. The HX-3 can drive high and low impedance headphones to loud levels.

✱ **The HX-3 is capable of driving headphones to dangerous levels. Take precautions to prevent hearing damage.**

Powering the HX-3

The HX-3 is designed to operate on two AA alkaline cells for approximately XX hours into 75 ohm headphones (at nominal levels). The audio performance of the HX-3 does not vary throughout the life of the batteries.

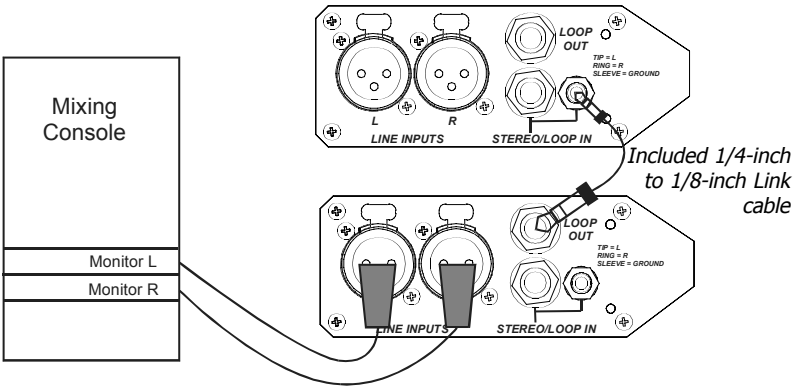
Several factors affect battery life including - battery chemistry, ambient temperature of operation, headphone impedances, headphone drive levels, and number of headphones in use. The chart below can be used as a starting point to estimate battery life. Experimentation is recommended to determine battery life for each individual setup. Note: Nickel-Cadmium batteries are not recommended in the HX-3 since these batteries have lower energy per cell than other types and will result in very short service.

Battery Type	Operational Characteristics	Battery Life
Duracell AA MN 1500	Powered, idle	XX hrs.
Duracell AA MN 1500	Driving single, 75 ohm headphones at nominal level	XX hrs.
Duracell AA MN 1500	Driving three, 75 ohm headphones at high levels	XX hrs.

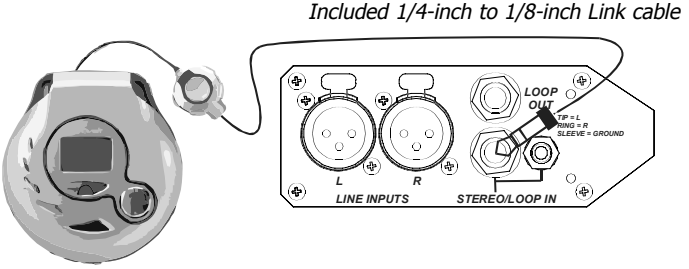
(Test conditions: 70 degrees F)

Connection Diagrams

The HX-3 can be used in a variety of headphone applications. Below are a few examples of interconnection setups using the HX-3.



One or more units can be added and "daisy-chained" for additional headphone feeds from a mixing console. Loop additional HX-3 amplifiers with the included Link cable.



The headphone outputs of portable audio electronics can be connected to the the HX-3 for additional headphone feeds. The included 1/4-inch to 1/8-inch can be used to connect the line-out or headphone output to the HX-3.

FCC Statement

This device has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

Warranty

Sound Devices, LLC warrants the HX-3 Headphone Distribution Amplifier against defects in materials and workmanship for a period of ONE (1) year from date of original retail purchase. This is a non-transferable warranty that extends only to the original purchaser. Sound Devices, LLC will repair or replace the product at its discretion at no charge. Warranty claims due to severe service conditions will be addressed on an individual basis. THE WARRANTY AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE. SOUND DEVICES, LLC DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SOUND DEVICES, LLC IS NOT RESPONSIBLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING FROM ANY BREACH OF WARRANTY OR UNDER ANY OTHER LEGAL THEORY. Because some jurisdictions do not permit the exclusion or limitations set forth above, they may not apply in all cases.

For all service, including warranty repair, please send the HX-3, along with proof of purchase date to:

Sound Devices, LLC
Service Repair
300 Wengel Drive
Reedsburg, WI 53959 USA