



SC Amp™ User Manual



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SC AMP USER MANUAL
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REV 022820

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Limited Warranty

LISTEN, Inc., a Massachusetts Corporation, having its principal place of business at 580 Harrison Ave, Suite 3W, Boston, MA 02118 ("Manufacturer") warrants its **SC Amp Audio Test & Measurement Amplifier** products (the "Products") as follows:

1. Limited Warranty.

Manufacturer warrants that the Products sold hereunder will be free from defects in material and workmanship for a period of one (1) year from the date of purchase. If the Products do not conform to this Limited Warranty during the warranty period (as herein above specified), Buyer shall notify Manufacturer in writing of the claimed defects and demonstrate to Manufacturer satisfaction that said defects are covered by this Limited Warranty. If the defects are properly reported to Manufacturer within the warranty period, and the defects are of such type and nature as to be covered by this warranty, Manufacturer shall, at its own expense, furnish, replacement Products or, at Manufacturer's option, replacement parts for the defective Products. Shipping of the replacement Products or replacement parts shall be at Buyer's expense.

2. Other Limits.

THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Manufacturer does not warrant against damages or defects arising out of improper or abnormal use of handling of the Products; against defects or damages arising from improper installation (where installation is by persons other than Manufacturer), against defects in products or components not manufactured by Manufacturer, or against damages resulting from such non-Manufacturer made products or components. Manufacturer passes on to Buyer the warranty it received (if any) from the maker thereof of such non-Manufacturer made products or components. This warranty also does not apply to Products upon which repairs have been effected or attempted by persons other than pursuant to written authorization by Manufacturer.

3. Exclusive Obligation.

THIS WARRANTY IS EXCLUSIVE. The sole and exclusive obligation of Manufacturer shall be to repair or replace the defective Products in the manner and for the period provided above. Manufacturer shall not have any other obligation with respect to the Products or any part thereof, whether based on contract, tort, strict liability or otherwise. Under no circumstances, whether based on this Limited Warranty or otherwise, shall Manufacturer be liable for incidental, special, or consequential damages.

4. Other Statements.

Manufacturer's employees or representatives' ORAL OR OTHER WRITTEN STATEMENTS DO NOT CONSTITUTE WARRANTIES, shall not be relied upon by Buyer, and are not a part of the contract for sale or this limited warranty.

5. Entire Obligation.

This Limited Warranty states the entire obligation of Manufacturer with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in full force and effect.

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IMPORTANT SAFETY PRECAUTIONS AND SYMBOL EXPLANATIONS

SC Amp has been supplied in safe operating condition.

This User's Manual contains information and warnings that should be followed by the user to ensure safe and service free operation. Special note should be made of the following:

1. Read these instructions
2. Keep these instructions
3. Heed all warnings
4. Follow all instructions
5. **WARNING:** To prevent fire or electric shock, do not expose this equipment to rain or moisture. Do not use this apparatus near water.
6. Clean only with a dry cloth. Do not use spray or liquid cleaning solutions.
7. Airflow around the heat sink must remain unobstructed during use. Do not block or cover the heat sink. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. The appliance coupler is the AC mains disconnect and should remain readily operable after installation.
10. Do not defeat the safety purpose of the grounding-type plug. This apparatus should be connected to a receptacle with a protective earthing (or ground) connection.
11. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Use only attachments/accessories specified by Listen, Inc.
13. Use only with hardware, brackets, stands, and components sold with the apparatus or by Listen, Inc.
14. Unplug the apparatus during lightning storms or when unused for long periods of time.
15. Whenever it is likely that the correct functioning or operating safety of the apparatus has been impaired, the apparatus must be made inoperative and be secured against unintended operation. Any adjustment, maintenance and repair of the open apparatus, under power, must be avoided as far as possible and, if unavoidable, must be carried out only by trained service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Safety Symbols



The exclamation point triangle is used to indicate that caution is necessary when operating the device or control close to where the symbol is placed, or to indicate that the current situation needs operator awareness or operator action in order to avoid undesirable consequences. This alerts the user to the presence of important operating and maintenance (servicing) instructions in the this manual.

Power In Connector



CAUTION! Do not substitute the supplied AC power adapter. Substituting the AC power adapter may damage the product and introduce safety hazards. Only use power adapters supplied by or approved by Listen, Inc.

Power Out Connector



CAUTION! The Power Out connector on the rear panel is intended for powering certain Listen, Inc. products and peripherals designed for 24 VDC power sources and draw less than 1 A of current. It is protected from excessive current draw by an internal self-resetting fuse. Only connect products to this connector that have been supplied by or approved by Listen, Inc.

Heatsink and Output Connections



CAUTION! This product is designed for short-term use during loudspeaker testing. Surface temperatures of the rear heatsink can exceed 60°C under certain conditions:

- When the Output terminals are connected to impedances nominally less than the minimum rated output impedance load of 4 Ω
- When the Output terminals are inadvertently short circuited
- When the product is operated at or near the maximum rated output power of 35 W at a duty cycle exceeding 25%
- When the product is operated at ambient temperatures close to or exceeding the maximum rated ambient temperature of 40°C
- When the product is operated with the output waveform clipped
- When the product is loaded with loads other than a conventional loudspeaker with a voice coil
- Combinations of the above conditions

The user should take precautions to avoid personal injury and damage to nearby objects should the heatsink exceeds 60°C. Keep all cables and wires away from the heatsink to avoid insulation damage.

Operating the product under the above conditions or with heatsink surface temperatures exceeding 60°C will not damage the product.

VIGTIGE SIKKERHEDSFORSKRIFTER OG SYMBOLFORKLARINGER

SC Amp leveres i sikker driftstilstand.

Denne brugervejledning indeholder oplysninger og advarsler, der skal følges af brugeren for at sikre en sikker og servicefri drift. Bemærk venligst følgende:

1. Læs denne vejledning
2. Opbevar denne vejledning
3. Overhold alle advarsler
4. Følg alle anvisninger
5. **ADVARSEL:** For at forhindre brand eller elektrisk stød må du ikke udsætte dette udstyr for regn eller fugt. Brug ikke denne enhed i nærheden af vand.
6. Rengør kun med en tør klud. Brug ikke spray eller flydende rengøringsmidler.
7. Luftstrøm omkring kølelegemet skal forblive uhindret under brug. Undgå at blokere eller tildække kølelegemet. Installer i overensstemmelse med producentens anvisninger.
8. Må ikke installeres i nærheden af varmekilder såsom radiatorer, varmeenheder, ovne eller andre enheder (herunder forstærkere), der producerer varme.
9. Enhedens stik er hovedafbryder og bør være let at komme til efter installation .
10. Omgå ikke sikkerheden ved stikket til jordforbindelse. Denne enhed skal forbindes til en beholder med en intakt beskyttelsesleder (eller jord) forbindelse.
11. Beskyt netledningen mod at blive trådt på eller klemt, specielt ved stik, stikdåser og det punkt, hvor ledningen føres ud af enheden.
12. Brug kun tilslutninger/tilbehør som angivet af Listen, Inc.
13. Brug kun hardware, beslag, stande og komponenter som sælges sammen med enheden eller ved Listen, Inc.
14. Frakobl enheden under tordenvejr, eller når det ikke benyttes i længere tid.
15. Når det er sandsynligt, at den korrekte funktion eller driftssikkerhed af enheden er blevet forringet, skal enheden tages ud af drift og sikres mod utilsigtet drift. Enhver tilpasning, vedligeholdelse og reparation af det åbne enhed med strøm på, skal så vidt muligt undgås og må, hvis uundgåeligt, kun udføres af uddannet servicepersonale. Service er påkrævet når enheden er blevet beskadiget på nogen måde, som f.eks strømforsyningsledningen eller stikket er beskadiget, der er spildt væske eller der er faldet genstande ned i enheden, hvis enheden har været udsat for regn eller fugt, ikke fungerer normalt, eller er blevet tabt.

Sikkerhedssymboler



Trekanten med udråbstegnet bruges til at angive at forsigtighed er nødvendig ved brug af enheden eller kontrol tæt på hvor symbolet er placeret, eller at angive at den nuværende situation kræver bevidsthed af operatøren eller operatør handling for at undgå uønskede konsekvenser. Det advarer brugeren om tilstedeværelsen af vigtige betjenings- og vedligeholdelse (service) i denne vejledning.

Power In Tilslutning



ADVARSEL! Du må ikke udskifte den medfølgende lysnetadapter. Udskiftning af lysnetadapteren kan beskadige produktet og medføre sikkerhedsrisici. Brug kun strømforsyninger leveret af eller godkendt af Listen, Inc.

Power Out Tilslutning



ADVARSEL! Power Out-stikket på bagpanelet er beregnet til at forsyne visse Listen, Inc. produkter og periferiudstyr designet til 24 VDC strømkilder og trækker mindre end 1 A strøm. Det er beskyttet mod overdreven strømforbrug af en intern selv-nulstillings sikring. Tilslut kun produkter til dette stik, der er leveret af eller godkendt af Listen, Inc.

Køleplade og Output Tilslutninger



ADVARSEL! Dette produkt er beregnet til kortvarig brug under højttaler test. Overfladetemperaturer på den bageste køleplade kan overstige 60° C under visse betingelser:

- Når Output terminalerne er forbundet til impedanser nominelt mindre end den minimale udgangsimpedans belastning på 4 Ω
- Når Output terminalerne uforvarende kortsluttes
- Når produktet betjenes ved eller nær den maksimale nominelle udgangseffekt på 35W med en arbejdscyklus på over 25%,
- Når produktet betjenes ved omgivende temperaturer tæt på eller overstigende den maksimale nominelle rumtemperatur på 40° C
- Når produktet betjenes med clipped output bølgeform
- Når produktet er indlæst med andre belastninger end en konventionel højttaler med en svingpole
- Kombinationer af ovenstående betingelser

Brugeren skal tage forholdsregler for at undgå personskader og skader på nærliggende objekter hvis kølepladen overstiger 60° C. Hold alle kabler og ledninger væk fra kølepladen for at undgå isoleringsskader.

Betjening af produktet under ovenstående betingelser eller med køleplade overfladetemperaturer på over 60° C vil ikke skade produktet.

EXPLICATIONS IMPORTANTES DES SYMBOLES ET DES PRÉCAUTIONS DE SÉCURITÉ

SC Amp a été fourni dans une condition de fonctionnement sécuritaire.

Ce manuel de l'utilisateur contient de l'information et des mises en gardes devant être suivies par l'utilisateur afin de garantir un fonctionnement sécuritaire et libre d'entretien. Prenez note de ce qui suit :

1. Lisez ces directives
2. Conservez ces directives
3. Tenez compte de toutes les directives
4. Respectez toutes les directives
5. MISE EN GARDE : Pour empêcher un incendie ou un choc électrique, n'exposez pas cet équipement à un environnement humide (pluie ou humidité). N'utilisez pas cet appareil près d'une source d'eau.
6. Nettoyez-le seulement avec un chiffon sec. N'utilisez pas de solutions de nettoyage par pulvérisation ou liquide.
7. Le flux d'air autour du dissipateur de chaleur doit demeurer non-bloqué lors de l'utilisation de l'appareil. Ne bloquez pas et ne couvrez pas le dissipateur de chaleur. Installez l'appareil selon les directives du fabricant.
8. N'installez pas de toute source de chaleur, comme les radiateurs, les registres d'air chaud, les fours, ou les autres appareils (incluant les amplificateurs) produisant de la chaleur.
9. Le coupleur de l'appareil est le débranchement secteur CA et doit demeurer opérationnel en tout temps après l'installation.
10. Ne modifiez pas les fins de sécurité de la fiche de type mise à la terre. Cet appareil doit être branché à une prise avec une connexion de mise à la terre.
11. Assurez-vous que l'on ne puisse pas marcher sur ou pincer le cordon électrique. Spécialement au niveau des fiches et des prises, et à l'endroit où ces dernières sortent de l'appareil.
12. Utilisez seulement des accessoires spécifiés par Listen, Inc.
13. Utilisez seulement avec de la quincaillerie, des supports et des composants vendus avec l'appareil ou par Listen, Inc.
14. Débranchez l'appareil lors de tempêtes électriques ou lorsqu'il n'est pas utilisé pendant de longues périodes de temps.
15. Dès qu'il semble probable que le bon fonctionnement sécuritaire de l'appareil ait été compromis, on doit cesser d'utiliser ce dernier et il doit être protégé contre tout fonctionnement involontaire. Tout réglage, entretien et réparation de l'appareil ouvert, sous tension, doit être évité le plus possible et, sinon, doit être effectué seulement par du personnel d'entretien formé. L'entretien est requis lorsque l'appareil a été endommagé de quelque façon, comme au niveau du cordon électrique, ou de la fiche, ou si du liquide a été déversé sur l'appareil, ou si des objets sont tombés dessus, ou si l'appareil a été exposé à un environnement humide (pluie, humidité), ou s'il ne fonctionne pas normalement ou si on l'a laissé tomber.

Symboles de sécurité



Le triangle du point d'exclamation est utilisé pour indiquer qu'une précaution est nécessaire lors de l'utilisation de l'appareil ou de la télécommande près de l'endroit où se trouve le symbole, ou pour indiquer que la situation actuelle demande une présence d'esprit de l'opérateur ou un geste de l'opérateur afin d'éviter des conséquences non-désirées. Cela avertit l'utilisateur de la présence d'instructions importantes d'utilisation et d'entretien contenues dans ce manuel.

Connecteur de l'alimentation entrante



AVERTISSEMENT ! N'utilisez pas un autre adaptateur de courant CA que celui fourni. L'utilisateur d'un adaptateur de courant CA autre peut endommager le produit et présenter des dangers de sécurité. Utilisez seulement des adaptateurs de courant fournis par ou approuvés par Listen, Inc.

Connecteur de l'alimentation sortante



AVERTISSEMENT ! Le connecteur de l'alimentation sortante sur le panneau arrière a été fabriqué pour alimenter certains produits et périphériques Listen, Inc. conçus pour des sources d'alimentation de 24 VCC et tirant moins de 1 A de courant. Ce connecteur est protégé d'une consommation de courant excessive par un fusible de réinitialisation automatique interne. Branchez seulement à ce connecteur des produits fournis par ou approuvés par Listen, Inc.

Branchements du dissipateur de chaleur et de la sortie



AVERTISSEMENT ! Ce produit est conçu pour une utilisation à court-terme lors d'un test d'un haut-parleur. Les températures de la surface du dissipateur thermique arrière peuvent dépasser les 60 °C sous certaines conditions :

- Lorsque les bornes de sortie sont branchées à des impédances nominalement moindre que la charge d'impédance de sortie nominale minimale de 4?
- Lorsque les bornes de sortie sont involontairement mises en court-circuit
- Lorsque le produit est utilisé à ou près de la puissance de sortie nominale maximale de 35 W à un cycle de service dépassant les 25 %
- Lorsque le produit est utilisé dans des températures ambiantes près de ou dépassant la température ambiante nominale maximale de 40 °C
- Lorsque le produit est utilisé avec le signal de sortie écrêté
- Lorsque le produit a des charges autres qu'un haut-parleur conventionnel avec une bobine acoustique
- Combinaisons des conditions ci-dessus

L'utilisateur doit prendre les précautions nécessaires pour éviter les blessures personnelles et les dommages aux objets tout près si le dissipateur de chaleur dépassait les 60 °C. Conservez tous les câbles et les fils loin du dissipateur de chaleur pour éviter des dommages à la gaine d'isolation.

Le fonctionnement de ce produit en-dessous des conditions ci-dessus ou avec des températures de la surface du dissipateur de chaleur dépassant les 60 °C n'endommagera pas le produit.

WICHTIGE SICHERHEITSVORKEHRUNGEN UND SYMBOL-ERKLÄRUNGEN

Der SC Amp wurde in einem betriebssicheren Zustand ausgeliefert.

Dieses Handbuch enthält Informationen und Warnungen, die von den Nutzern beachtet werden sollten, um einen sicheren und wartungsfreien Betrieb zu gewährleisten. Hierzu sollten die folgenden Hinweise genau beachtet werden:

1. Lesen Sie diese Anweisungen
2. Bewahren Sie diese Anweisungen auf
3. Beachten Sie alle Warnungen
4. Folgen Sie allen Anweisungen
5. **WARNUNG:** Um Brand oder Stromschläge zu verhindern, darf das Gerät auf keinen Fall Regen oder Feuchtigkeit ausgesetzt werden. Verwenden Sie dieses Gerät nicht in der Nähe von Wasser.
6. Reinigen Sie das Gerät nur mit einem trockenen Tuch. Verwenden Sie keine Sprays oder flüssigen Reinigungslösungen.
7. Während der Benutzung muss die freie Luftzirkulation um den Kühlkörper herum stets gesichert sein. Der Kühlkörper darf weder blockiert noch abgedeckt werden. Bei der Installation sind die Anweisungen des Herstellers zu beachten.
8. Installieren Sie das Gerät nicht in der Nähe von Wärmequellen wie Heizkörpern, Wärmespeichern, Öfen oder anderen Geräten (einschließlich Verstärkern), die Wärme erzeugen.
9. Der Netzstecker dient zur Trennung des Gerätes von der Stromversorgung und sollte jederzeit erreichbar sein.
10. Die Sicherheitsfunktion des geerdeten Steckers darf nicht umgangen oder aufgehoben werden. Das Gerät darf nur an eine Steckdose mit Schutzerdung (oder Masse) angeschlossen werden.
11. Das Netzkabel muss so geschützt werden, dass niemand auf das Kabel treten kann und dass es nicht gequetscht werden kann. Dies gilt besonders für die Bereiche am Stecker, an den Anschlussbuchsen und an den Stellen, an denen das Kabel aus dem Gerät herausgeführt wird.
12. Verwenden Sie nur Zubehör/Zusatzgeräte, die von Listen Inc. für diesen Zweck zugelassen wurden.
13. Verwenden Sie das Gerät ausschließlich mit Geräten, Halterungen, Ständern und Komponenten die zusammen mit dem Gerät oder von Listen Inc. verkauft wurden.
14. Während eines Gewitters oder bei längerer Nichtverwendung muss das Gerät von der Stromversorgung getrennt werden.
15. Wenn angenommen werden muss, dass die einwandfreie Funktion und Betriebssicherheit des Gerätes beeinträchtigt sein könnte, muss das Gerät in jedem Einzelfall außer Betrieb gesetzt und gegen unbeabsichtigten Betrieb gesichert werden. Wenn das Gerät an den Strom angeschlossen ist, muss jede Einstellung, Wartung und Reparatur am geöffneten Gerät so weit wie möglich vermieden werden. Fall dies dennoch unvermeidbar sein sollte, dürfen diese Arbeiten nur von ausgebildetem Fachpersonal durchgeführt werden. Eine Wartung ist immer erforderlich, wenn das Gerät in irgendeiner Weise beschädigt wurde, z.B., wenn das Netzkabel oder der Stecker beschädigt ist, Flüssigkeit oder Gegenstände in das Gerät eingedrungen sind, das Gerät Regen oder Feuchtigkeit ausgesetzt war, wenn das Gerät nicht normal funktioniert oder fallen gelassen wurde.

Sicherheitssymbole



Das Ausrufezeichensymbol wird immer dann dargestellt und in der Nähe der Stelle angezeigt, an der besondere Vorsicht beim Betrieb oder bei der Steuerung des Gerätes erforderlich ist. Es wird auch angezeigt, wenn die besondere Aufmerksamkeit oder der Eingriff des Nutzers erforderlich ist um ungewünschte Konsequenzen zu vermeiden. Dieses Zeichen weist den Nutzer auf die besonderen Betriebs- und Wartungserfordernisse in diesem Handbuch hin.

Eingang-Netzanschluss



VORSICHT! Ersetzen Sie keinesfalls das mitgelieferte Netzteil. Durch den Austausch des Netzteils kann das Gerät beschädigt werden und Sicherheitsrisiken hervorrufen. Verwenden Sie nur Netzteile, die von Listen Inc. geliefert oder zugelassen wurden.

Ausgang-Netzanschluss



VORSICHT! Der rückseitige Ausgang-Netzanschluss ist für die Stromversorgung bestimmter Listen, Inc. Produkte und Peripheriegeräte bestimmt und auf eine Versorgungsspannung von 24 VDC mit weniger als 1 A Leistungsaufnahme ausgelegt. Es ist durch eine interne selbststrücksetzende Sicherung vor übermäßiger Leistungsaufnahme geschützt. Schließen sie ausschließlich Geräte an diesen Stromausgang an, die von Listen Inc. geliefert oder zugelassen wurden.

Kühlkörper und Ausgangsanschlüsse



VORSICHT! Dieses Produkt ist für den kurzfristigen Einsatz bei Lautsprecherprüfungen konzipiert. Unter bestimmten Bedingungen kann die Oberflächentemperatur des hinteren Kühlkörpers 60°C überschreiten. Z.B.,

- Wenn die Ausgangsanschlüsse mit Impedanzen verbunden sind, die nominal kleiner als die minimale Nennausgangs impedanz von 4 Ohm sind.
- Wenn die Ausgangsklemmen versehentlich kurzgeschlossen wurden.
- Wenn das Gerät an oder nahe der maximalen Nennausgangsleistung von 35 W und einem Arbeitszyklus von mehr als 25% betrieben wird.
- Wenn das Gerät in einer Umgebungstemperatur betrieben wird, die nahe an oder über der maximal erlaubten Umgebungstemperatur von 40°C liegt.
- Wenn das Gerät mit begrenzter Ausgangswellenform betrieben wird.
- Wenn das Gerät mit Lautsprecherlasten betrieben wird, die von den üblichen Lasten für Lautsprecher mit Schwingspule abweichen.
- Bei Kombinationen der oben genannten Bedingungen.

Um Verletzungen oder Beschädigungen benachbarter Gegenstände zu vermeiden sollte der Nutzer geeignete Vorkehrungen treffen, wenn die Oberflächentemperatur des Kühlkörpers 60°C überschreitet. Um Schäden an der Isolierung zu vermeiden, sollten sich keine Kabel oder Leitungen in der Nähe des Kühlkörpers befinden.

Der Betrieb des Gerätes unter den oben genannten Bedingungen oder mit einer Oberflächentemperatur des Kühlkörpers von über 60°C führt nicht zur Beschädigung des Gerätes.

PRECAUCIONES IMPORTANTES DE SEGURIDAD Y EXPLICACIONES DE SÍMBOLOS

SC Amp se entregó en condiciones seguras de funcionamiento.

Este manual del usuario contiene información y advertencias que el usuario debe respetar para garantizar el funcionamiento seguro y sin mantenimiento. Se debe prestar especial atención a lo siguiente:

1. Lea estas instrucciones.
2. Conserve estas instrucciones.
3. Preste atención a todas las advertencias.
4. Siga todas las instrucciones.
5. **ADVERTENCIA:** Para evitar incendios o descargas eléctricas, no exponga el equipo a la lluvia o la humedad. No use este aparato cerca del agua.
6. Limpie solo con un paño seco. No use soluciones de limpieza líquidas ni en rociador.
7. No se debe obstruir el flujo de aire alrededor del disipador térmico durante el uso. No bloquee ni cubra el disipador térmico. Instale siguiendo las instrucciones del fabricante.
8. No instale cerca de fuentes de calor como radiadores, registros térmicos, estufas ni otros aparatos (incluidos amplificadores) que produzcan calor.
9. El conector del aparato es el dispositivo de desconexión de la corriente alterna y debe permanecer accesible después de la instalación.
10. No elimine el dispositivo de seguridad del enchufe conectado a tierra. Este aparato se debe conectar a un receptáculo con una conexión a tierra que sirva de protección.
11. Proteja el cable de alimentación para que nadie lo pise ni quede apretado, particularmente cerca de los enchufes, receptáculos de tomas múltiples y en el lugar en que sale del aparato.
12. Use solo aditamentos y accesorios especificados por Listen, Inc.
13. Use solo herramientas, soportes, plataformas y componentes vendidos junto con el aparato o vendidos por Listen, Inc.
14. Desconecte el aparato durante tormentas eléctricas o cuando no se vaya a utilizar durante largos períodos de tiempo.
15. Siempre que sea probable que se haya dañado el correcto funcionamiento o la seguridad de operación del aparato, se debe detener su funcionamiento y se debe bloquear para evitar una operación no deseada. Siempre que sea posible, se debe evitar cualquier ajuste, mantenimiento y reparación del aparato abierto mientras esté conectado a la red eléctrica; si no se puede evitar, solo personal de mantenimiento capacitado debe realizar esas tareas. Será necesaria la reparación del aparato cuando presente daños de cualquier tipo, por ejemplo si está dañado el cable de alimentación o el enchufe, si se derramó líquido o si cayeron objetos dentro del aparato, si este estuvo expuesto a la lluvia o a la humedad, si no funciona correctamente o si se ha caído.

Símbolos de seguridad



El triángulo con el signo de exclamación se usa para indicar que se debe ser cuidadoso al operar el dispositivo o control cerca de donde se ubica el símbolo, o para indicar que la situación actual requiere del conocimiento o la acción del operador para evitar consecuencias no deseadas. Con este símbolo, se alerta al usuario sobre la existencia de instrucciones de operación y mantenimiento (servicio) importantes en este manual.

Conector de entrada de tensión



¡PRECAUCIÓN! No reemplace el adaptador de energía de corriente alterna provisto. Si reemplaza el adaptador de energía de corriente alterna, podrá dañar el producto y poner en riesgo la seguridad. Solo use adaptadores provistos o aprobados por Listen, Inc.

Conector de salida de tensión



¡PRECAUCIÓN! El conector de salida de tensión que se encuentra en el tablero trasero sirve para alimentar determinados productos y periféricos de Listen, Inc. diseñados para fuentes de alimentación de 24 V CC y consume menos de 1 A de corriente. Está protegido contra el consumo excesivo de corriente a través de un fusil interno que se restablece solo. Solo conecte productos a este conector que hayan sido provistos o aprobados por Listen, Inc.

Disipador término y conexiones de salida



¡PRECAUCIÓN! Este producto está diseñado para un uso a corto plazo durante la prueba de altavoces. Las temperaturas de la superficie del disipador térmico trasero pueden superar los 60 °C en determinadas situaciones:

- cuando las terminales de salida están conectadas a resistencias nominalmente menores a la carga de resistencia de salida nominal mínima de 4?;
- cuando las terminales de salida entran involuntariamente en cortocircuito;
- cuando el producto se opera cerca de la potencia de salida nominal máxima de 35 W, o a esa potencia, a un ciclo de trabajo que supera el 25 %;
- cuando el producto se opera a temperaturas ambiente cercanas a la temperatura ambiente nominal máxima de 40 °C o a una temperatura mayor;
- cuando el producto se opera con una onda de salida entrecortada;
- cuando el producto está cargado con cargas distintas a las de un altavoz convencional con una bobina de voz;
- cuando se produce una combinación de las situaciones mencionadas.

El usuario debe tomar precauciones para evitar lesiones personales y daños a objetos cercanos cuando el disipador térmico supere los 60 °C. Mantenga todos los cables y líneas lejos del disipador térmico para evitar que se produzcan daños por aislamiento.

Operar el producto en las condiciones mencionadas o con una temperatura en la superficie del disipador térmico que supere los 60 °C no dañará el producto.

Introduction

SC Amp is the world's only dedicated audio test amplifier. Specifically designed for the audio test market, it incorporates several patented features unique to the needs of audio test and measurement. Unnecessary features found in regular audio amplifiers have been eliminated to keep production line operation simple and error-proof.

Features

- SC Amp is a rugged and easy to use amplifier specifically designed for audio test
- It is a mono amplifier with low distortion (THD <0.025%) and a low noise floor (>100 dB)
- Fixed gain reduces calibration errors as there is no gain knob to be accidentally knocked or tweaked when it is in use
- A separate DC input is provided for the application of DC voltage offsets to the AC signal for testing transducers under adverse conditions
- Proprietary patented servo circuitry rapidly responds to DC offset step functions without ringing (rise and fall times of less than 100 ms typical) allowing audio sweeps to rapidly follow offset changes
- Overload, temperature, and output protection systems prevent damage due to shorting, overload, and high temperature conditions
- SC Amp integrates seamlessly with Listen's SoundCheck® audio test and measurement software and will also work well with other brands of test system
- Four, rugged, 2-unit high SC Amps can be mounted in a single 19" rack opening
- A proprietary, patented, active current monitor output permits impedance measurements that maintain a high damping factor, unlike impedance boxes
- SC Amp can accept balanced or single ended audio inputs from the audio interface

Front Panel

The front panel contains only an on/off switch and LEDs to indicate power on, level, and DC offset. This simple front panel keeps operation easy and error-proof as there is no possibility of accidentally changing knobs or buttons.

 - Power Switch with temperature indicator

Green: Power on, temperature OK

Red: Power on, internal temperature limit exceeded See [Over Temperature Standby on page 13](#)

Level - Indicates the amplifier signal level:

Off: No input signal or level is below -30 dBV

Green: Input level is about -30 dBV. Also illuminates when a DC offset has been applied.

Yellow: Output level is about 3 dB away from clipping

Red: Output is very close to clipping or is already clipped

DC Enabled - Blue indicates that DC Input is on, the indicator is off when DC input is disabled

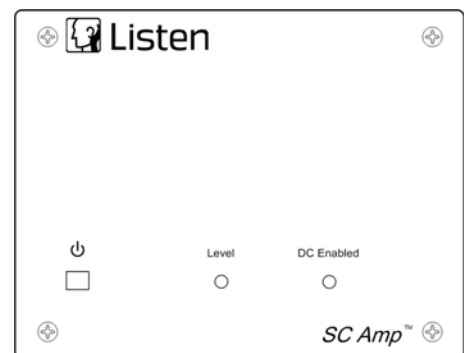


Figure 6-1: Front Panel

Rear Panel

Important!: Airflow around the heat sink must remain unobstructed during use.

Important!: CAUTION: The heat sink may become hot when operating this product continuously. Keep all cables clear of the heat sink to prevent damage to the cables if an overheat condition occurs.

GND Lift - This switch can help eliminate ground loops in some test systems.

In the out position, sleeves on the Line In and current monitor output TRS connectors are connected to the unit's chassis ground. This is the preferred position.

Depressing the switch isolates the sleeves from the unit's chassis ground at audio frequencies.

DC In Switch - Pressing this switch in enables DC offset operation. With the switch in the out position the DC offset operation is disabled.

DC In BNC connector - DC offset input

- Any voltage on this input, up to ± 3.5 V, will cause the output to be offset by the same amount.
- Low frequency AC signals (<5 Hz) can also be applied to this connector.

Line In - Power amplifier audio signal input

- Accepts balanced 1/4" TRS or single ended 1/4" TS connectors

0.1 V/A Out - Current Monitor output for impedance measurements. Provides a signal that monitors the current being delivered to load, with a sensitivity of 0.1 Volts/Amp.

- Accepts balanced 1/4" TRS or single ended 1/4" TS connectors

Amplifier Output - Audio amplifier output to load

- Dual binding posts accept lug terminals, standard banana connectors and bare wires
- Minimum load is 4 Ohms

Power Out - For powering other Listen, Inc., Hardware Connect series products.

- Provides 24 VDC 1 A typical, center pin is positive (+)

Important!: Do not attempt to power unapproved devices from this output.

Power In - Multipin connector for SC Amp's AC power adapter.

Important!: CAUTION - Only use the AC power adapter supplied by Listen, Inc.

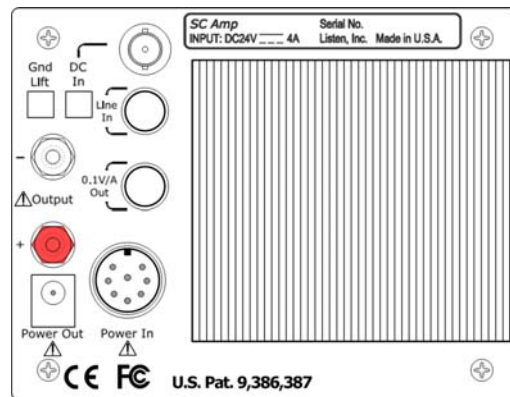


Figure 6-2: Rear Panel

Operation

SC Amp includes a 100 W power brick which accepts standard IEC, C13 AC power cords. Use only the power brick supplied by Listen, Inc.

Use the appropriate IEC power cord terminated for your AC mains supply.

Over Temperature Standby

When the amplifier temperature limit is exceeded, the power indicator will turn Red, the output is muted and the amplifier goes into Standby mode to allow it to cool down. After a few minutes of cooling the amplifier will return to normal operating mode and the indicator will turn green.

Thermal Shutdown

If the unit is operated in an enclosed environment with other heat sources, the unit may turn itself off and the power indicator will go dark, even though the switch is depressed. Set the power switch to the off position and allow the unit to cool down for several minutes before turning on again. If this does not reset the unit, disconnect AC power from the power brick for several minutes and then try again.

Short Circuit Monitoring

The output of SC Amp is protected in case of a short across the amplifier output. It's fast, automatic, and does not trigger the thermal monitor since the internal temperature does not necessarily rise very much during a short circuit condition.

Calibration

The gain of SC Amp is fixed at 26.4 dB (± 0.1 dB).

SC Amp should be calibrated in SoundCheck in order to determine the gain and obtain the most accurate impedance measurement.

Follow the Amplifier Calibration procedure in the **Calibration Chapter** of the SoundCheck manual.

The SoundCheck Calibration Configuration is shown in [Figure 7-1](#).

The calibration process precisely determines the gain of SC Amp, updates the Sensitivity field, and creates correction curves for the response and phase of SC Amp including the output of the audio interface.

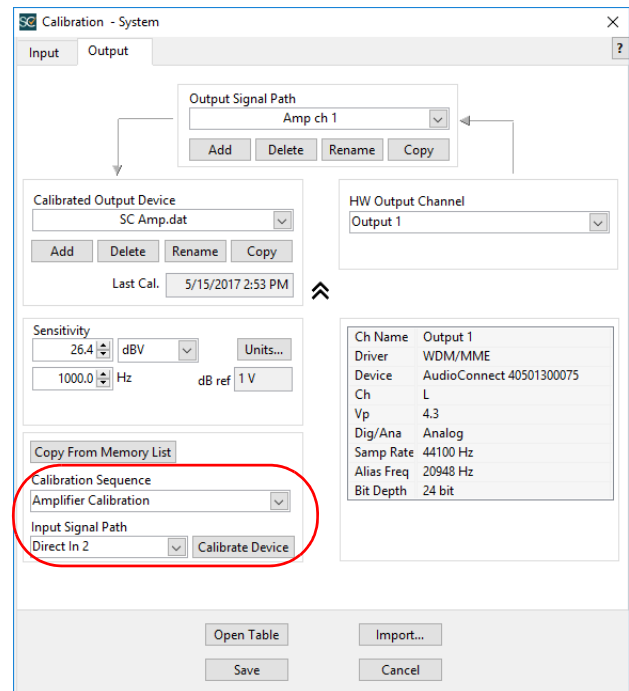


Figure 7-1: Calibration

Single Speaker Test Example

When using the SC Amp with a Balanced In/Out sound card, you should use balanced cables for the connections as shown in [Figure 7-2](#). SC Amp accepts standard 1/4" TRS (tip/ring/sleeve) phone plug connectors.

If the sound card has only single-ended (unbalanced) connection available, you should only use 1/4" TS (tip/sleeve) connectors.

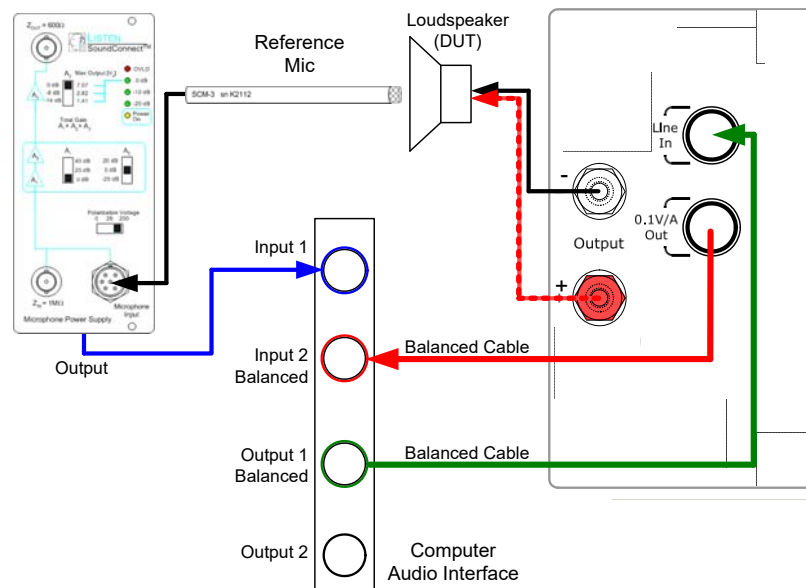


Figure 7-2: Single Loudspeaker Test

Note: *Connecting two loudspeakers in parallel to one amplifier output reduces the impedance of the load, e.g., 8 Ohms in parallel with 8 Ohms equals 4 Ohms. SC_Amp's performance will vary with loads below 4 Ohms.*

Impedance Measurement

When using SC Amp with SoundCheck, the Impedance Analysis Step should use the AmpConnect/SC Amp circuit model as shown in [Figure 7-3](#).

- Under Impedance Measurement Method you select AmpConnect/SC Amp
- Under Rref you must select Z-Low

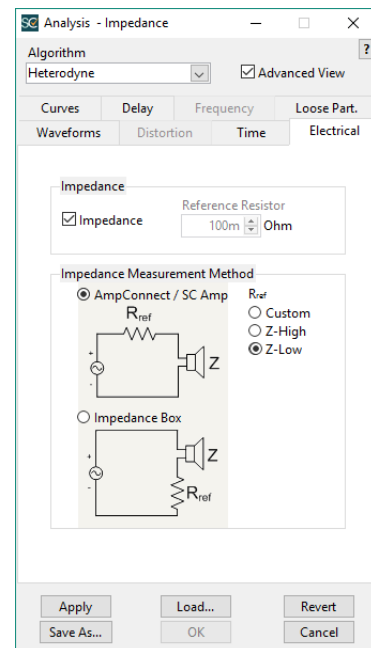


Figure 7-3: Impedance Step

BNC Connections

When using devices with BNC inputs or outputs it is important to use the proper connection method between that device and SC Amp. This is because BNC is inherently single ended.

For BNC Device Input

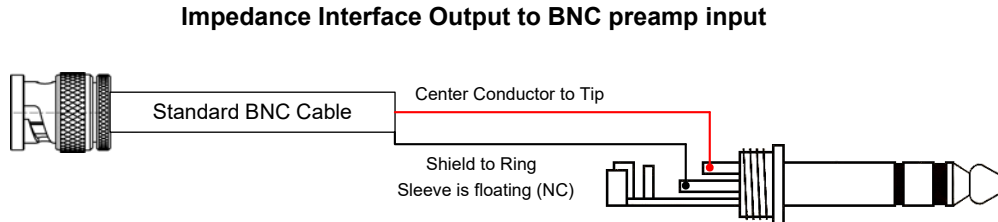


Figure 7-4: BNC Input Connections

Figure 7-4 shows the **Tip** and **Ring** of a 1/4" TRS male phone plug wired to the Center conductor and Shield of a BNC connector. The TRS Plug connects to the Impedance Interface Output of SC Amp. Since the BNC input is single ended, this connection allows you to connect to the differential output of the Impedance Interface Output which is essential for the correct operation of this circuit.

For BNC Device Output

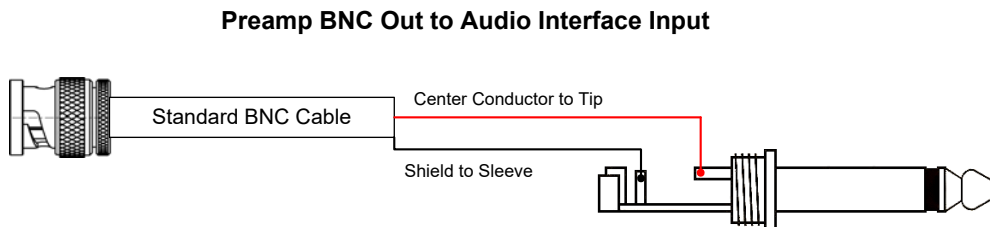


Figure 7-5: BNC Output Connections

The BNC output can be connected to a 1/4" Tip / Sleeve male phone plug as shown in **Figure 7-5**. The audio input of SC Amp accepts Balanced and Single Ended connections.

In this case a standard BNC cable with a BNC female to 1/4" male adapter is suitable for use as well.

Use with DC Connect

Voice Coil Offset (DC Offset)

SC Amp can be used with external voltage sources in order to apply an offset to the stimulus sent to a speaker under test.

The example in [Figure 7-6](#) shows SoundCheck controlling Listen's DC Connect in order to supply a DC Offset voltage to SC Amp.

- The SoundCheck system is connected via USB to DC Connect
- DC Connect output is connected to the DC Offset input of SC Amp
- The SoundCheck sound card Output 1 is connected to the Line In of SC Amp
- A DC Connect Stimulus Step in a test sequence controls DC Connect to send a 1 VDC signal to SC Amp
- The sine sweep stimulus from the SoundCheck sequence has a positive offset of 1 V applied to it as show in [Figure 7-6](#).

DC Connect Stimulus Step in SoundCheck sequence set to control DC Connect via USB. DC Connect output voltage set to 1 VDC.

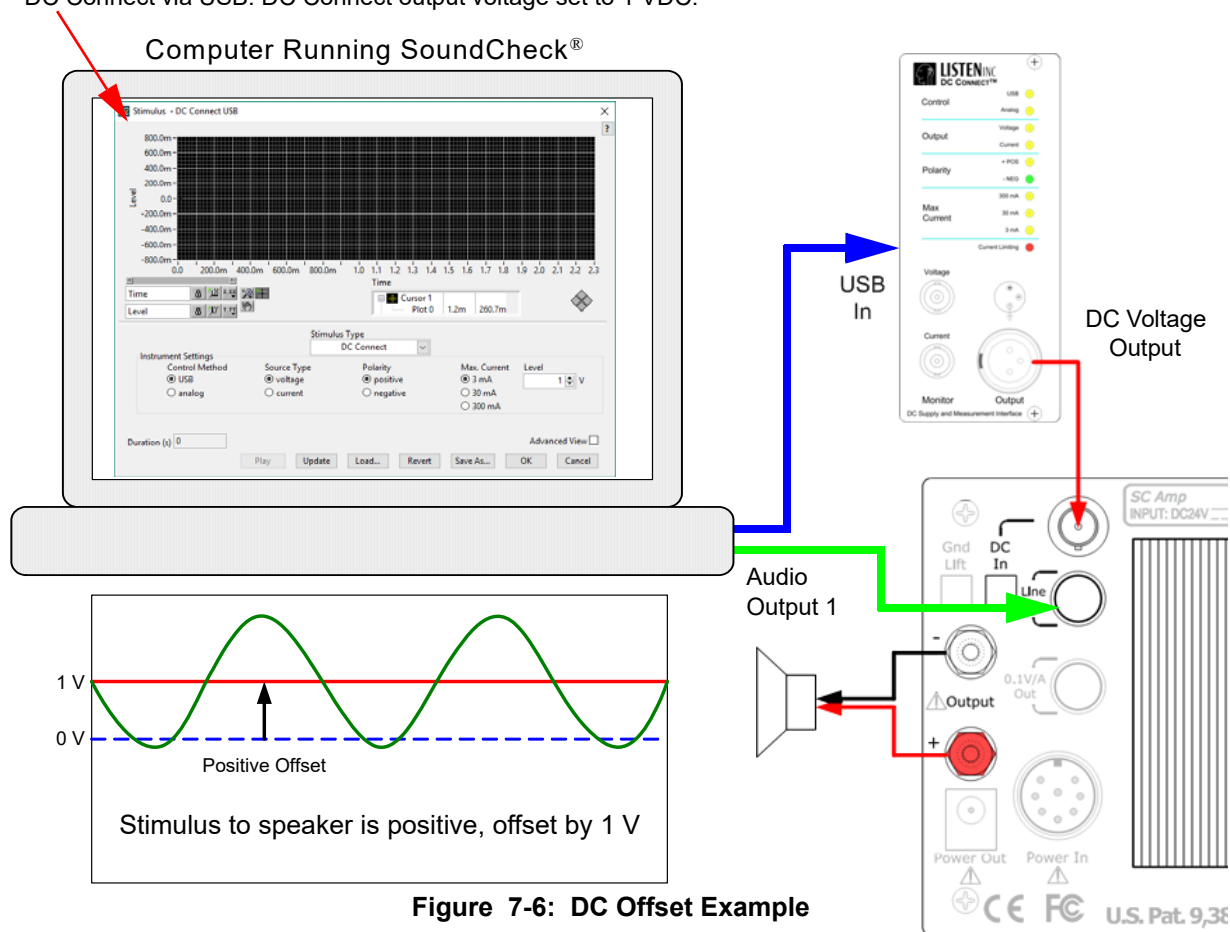


Figure 7-6: DC Offset Example

Note: Use with other offset sources is similar. Any voltage supply can be used to apply up to ± 3.5 VDC or Low frequency AC (< 5 Hz).

DC Offset vs Output Voltage Limit

As DC Offset is applied, the maximum output voltage (V_{p-p}) of SC Amp decreases.

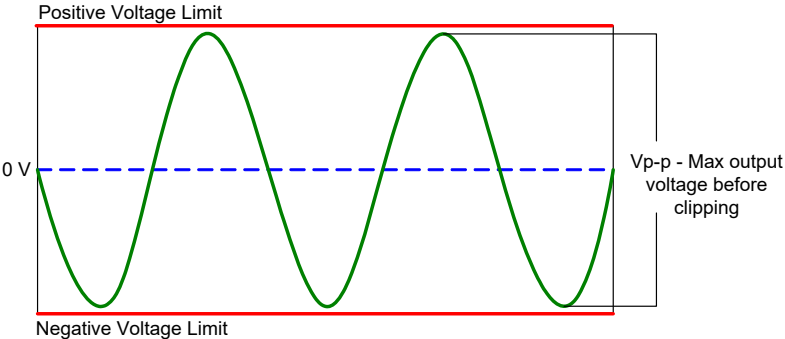


Figure 7-7: Maximum Voltage Limit

Figure 7-7 shows the signal at the full output voltage (V_{p-p}) of SC Amp.

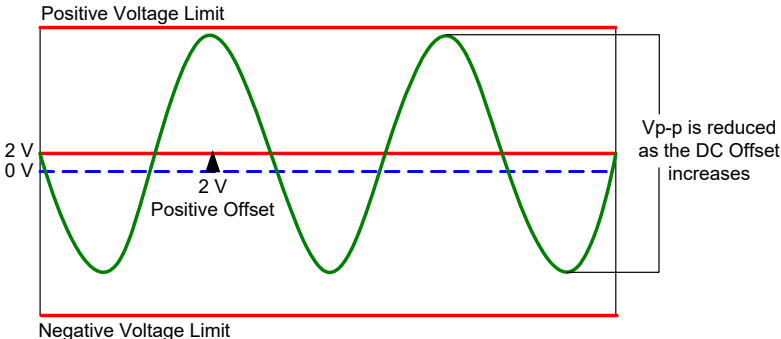
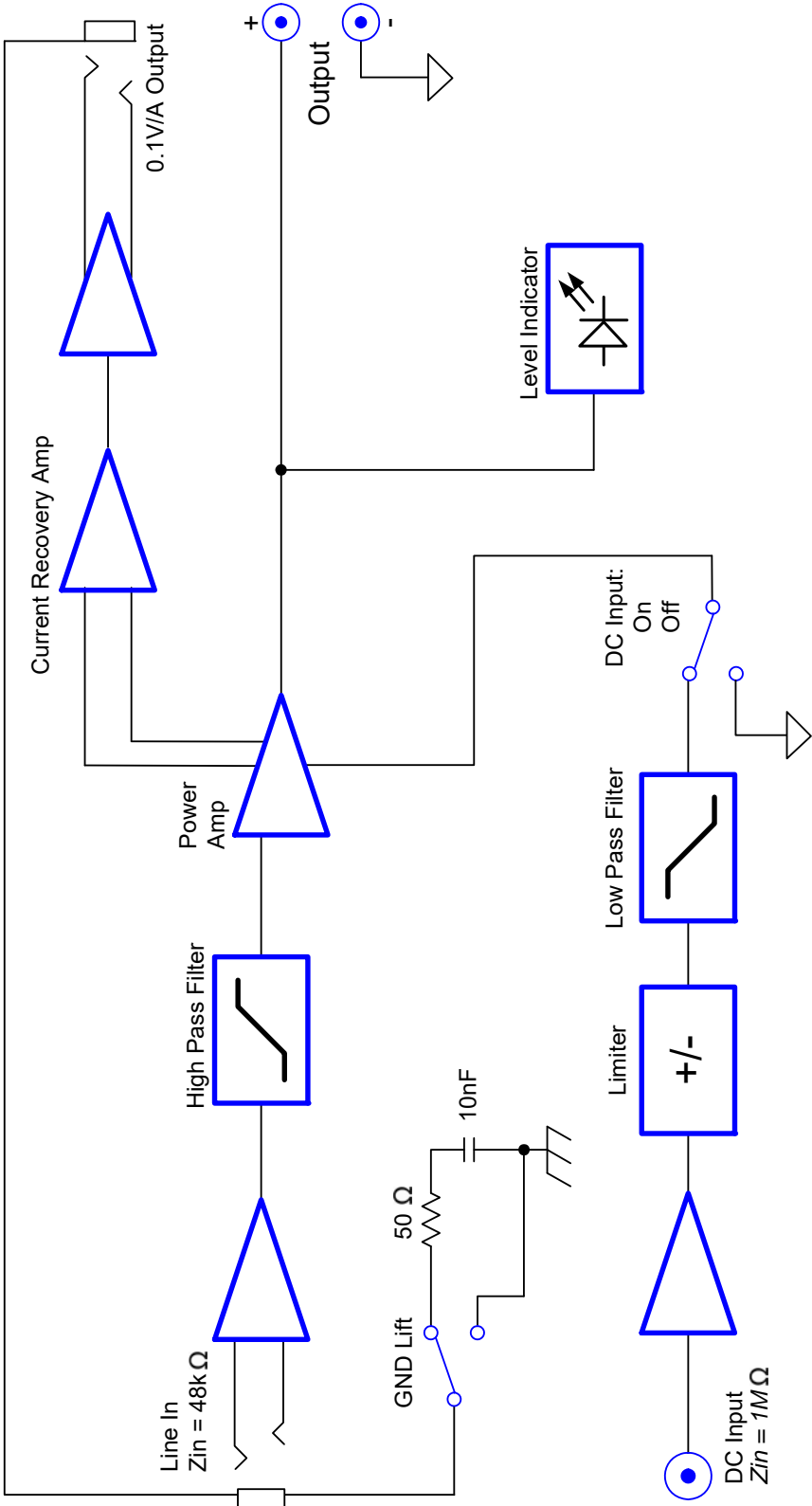


Figure 7-8: DC Offset Reduces V_{p-p}

Figure 7-8 shows a 2 VDC Offset applied which reduces the maximum potential output signal.

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Block Diagram



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Specifications

Power Amplifier	
Max Output Power (DC offset disabled)	35 W into 4 Ω , 20 W into 8 Ω , @ 1 % THD
Flatness 20 Hz - 20 kHz	± 0.1 dB
Frequency Response	-3 dB, < 5 Hz to > 100 kHz
THD+N	< -85 dB (0.006 %), 1 kHz, 2.83 V (1 W into 8 Ω)
Input connector	¼" TRS Phone Jack, Balanced (Single Ended compatible), Impedance: 48 k Ω Balanced & Single Ended
Source Impedance	<100 m Ω @ 1 kHz
Voltage Gain, unloaded	Fixed at 26.4 dB, ± 0.1 dB
Cooling	Rear heatsink
DC Input	
Input Connector	Isolated BNC, Impedance: 1 M Ω
DC Gain Factor	Unity
DC Offset Range	± 3.5 V
Maximum offset current to load	1 A
Step Function Rise and Fall Times	10 % – 90 % <100 ms, over-damped response
Current Monitor Output	
Output Sensitivity	0.1 V/A, ± 1 %
Output Impedance	60 Ω , Balanced & Single Ended
Output Connector	¼" TRS Phone Jack, Balanced (Single Ended compatible), Impedance: 60 Ω , Balanced & Single Ended
Physical	
Dimensions	4.375" W (111mm) x 3.4" H (86mm) x 9.25" D (235mm)
Weight	3.5 lb (1.6 kg)
AC Power Adapter	
100W power brick; accepts standard IEC, C13 AC power cords	

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Equipment Ratings

Normal Environmental Conditions



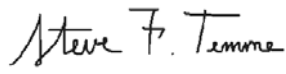
SC Amp may be used under the following environmental conditions:

- Indoor use only
- Altitudes up to 2,000 m
- Temperatures between 0 °C to 40 °C
- Maximum relative humidity 80% for temperatures up to 31 °C decreasing linearly to 50% relative humidity at 40 °C
- Within the main supply voltages listed on the supplied or approved AC power adapter
- Transient Overvoltages up to the levels of Overvoltage Category II as required in the relevant standards listed on the Declaration of Conformity
- Temporary Overvoltages occurring on the mains supply as required in the relevant standards listed on the Declaration of Conformity
- Pollution Degree 2 as required in the relevant standards listed on the Declaration of Conformity

Degree of Ingress Protection:

- SC Amp is rated IPX0 as required in the relevant standards listed on the Declaration of Conformity

Declaration of Conformity

	DECLARATION OF CONFORMITY According to EN ISO/IEC 17050-1:2004	
Manufacturer's Name:	Listen, Inc.	
Manufacturer's Address:	580 Harrison Avenue Suite 3W Boston, MA, 02118 U.S.A.	
<i>Declares under sole responsibility that the product as originally delivered</i>		
Product Description:	SC Amp Audio Test Amplifier	
Model Number:	4060	
<i>complies with the essential requirements of the following applicable European Directives, and carries the CE marking accordingly:</i>		
	Low Voltage Directive (2006/95/EC) EMC Directive (2004/108/EC)	
<i>and conforms with the following product standards:</i>		
Safety:	EN61010-1:2010, Ed. 3.0	
EMC:	EN55011:2009, A1 (2010) - Class A, Group 1 EN61000-3-2:2006, A1/A2 (2009) - Class A per Ed. 3.2 (2009 European Limits) EN61000-3-3:2008 EN61326-1:2006 USA: FCC Part 15, Class A Canada: ICES-003:2012 Australia/New Zealand: AS/NZS CISPR11	
<i>This Declaration of Conformity applies to the products listed herein and placed on the EU market after:</i>		
Date:	28 day of	May, 2014
Manufacturer: Listen, Inc.		
		
Signature		
Name:	Steve Temme	
Position:	President	
Date:	5/28/14	

Service and Repair

SC Amp is designed and constructed to provide the user with many years of safe and trouble free operation. However, should a fault occur which impairs its correct functioning, it should be immediately shut off, disconnected at the mains source and disconnected from other hardware. For repair, contact your local LISTEN service representative. Under no circumstances should persons not qualified in the service of electronic instrumentation attempt repair.

Contact Information

Contact the Listen office at 617-556-4104, Monday thru Friday, between 9 AM and 5 PM EST.

Sales - sales@listeninc.com

Technical Support - support@listeninc.com

580 Harrison Ave, Suite 3W • Boston, MA 02118 • 617-556-4104 • Fax 617-556-4145 • www.listeninc.com

U.S. Patent 9,386,387 issued July 5, 2016

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