Hafler®

P3100

Studio Power Amplifier

User Guide

Made in Canada

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dynaco®

NOTICE - IMPORTANT SAFETY INFORMATION

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

1. READ INSTRUCTIONS
All the safety and operating instructions of your Hafler equipment should be read before power is applied to the equipment.

2. RETAIN OWNER’S MANUAL
These safety and operating instructions should be retained for future reference.

3. HEED WARNINGS
All warnings on the equipment and in the operating instructions are important and should be followed.

4. FOLLOW INSTRUCTIONS
All operating and use instructions are important and should be followed.

5. HEAT
The equipment should be kept away from areas of high temperature, i.e., heater vents, radiators, stoves/ovens, fireplaces, etc.

6. VENTILATION
The equipment should be used in an area suitable for proper ventilation. Care should be taken not to impede airflow in and around the cabinet. Do not mount on a carpeted shelf or in a sealed enclosure. Allow for proper clearance above the equipment.

7. WATER AND MOISTURE
The equipment should not be used in or around water, such as a bathtub, sink, or swimming area. Also, the equipment should not be used in areas prone to flooding, such as a basement.

8. POWER SOURCES
The equipment should be connected only to a power source of the same voltage and frequency as that listed on the rear panel above the power cord entry point.

9. POWER CORD PROTECTION
Power cords should be arranged so they do not interfere with the movement of objects in the room: people, fan blades, utility carts, etc. Also, care should be taken that the cord is not pinched or cut, and placed so it is not in danger of being pinched or cut, as in under a rug, around a tight corner, etc.

10. POWER CORD GROUNDING
The power supply cord is of a three wire grounded type, designed to reduce the risk of electric shock sustained from a live cabinet. It is assumed to be of suitable length for most uses of the equipment. The use of extension cords and power strips is discouraged unless they are of suitable rating to deliver the required total current for safe operation of all connected equipment. Furthermore, extension cords or power strips must provide the same three wire grounded connection. It is important that the blades of the equipment’s plug be able to fully insert into the mating receptacle. **Never remove the round grounding pin on the plug in an attempt to mate to a two wire ungrounded receptacle:** use a grounding adaptor with the grounding tab or wire suitably connected to earth ground.

11. NON-USE PERIODS
During periods of extended non-use, the power cord should be unplugged from the power source.

12. CLEANING
The equipment should be cleaned only as detailed in the operating instructions.

13. OBJECT AND LIQUID ENTRY
Care should be taken so that objects and/or liquids, such as cleaning fluids or beverages, are not spilled into the enclosure of the equipment.

14. DAMAGE REQUIRING SERVICE
Hafler equipment should be serviced by qualified service personnel when:

a. The power supply cord or plug has been damaged, or

b. Objects have fallen, or liquid has been spilled into the equipment, or

c. The equipment has been exposed to rain, or

d. The equipment does not appear to operate normally or exhibits a marked change in performance, or

e. The equipment has been dropped, or the enclosure has been damaged.

15. SERVICING
The user should not attempt to service the equipment beyond that which is described in the operating instructions. All other service should be referred to qualified service personnel.

16. CARTS AND STANDS
The equipment should be used with carts or stands only of sufficient strength and stability for the use intended.

An equipment and cart combination should be moved with care. Quick stops and starts, excessive force, and uneven surfaces may cause the equipment and cart combination to topple.

17. NO USER ACCESSIBLE PARTS
The P3100 has no user accessible parts inside the device and should only be serviced by a qualified technician.

ESPAÑOL

ADVERTENCIA – INFORMACION DE SEGURIDAD IMPORTANTE

El símbolo de flecha relámpago dentro de un triángulo equilátero, es para alertar al usario de la presencia de “voltajes peligrosos” no aislados en el interior del aparato, los cuales pueden ser de suficiente magnitud para constituir un riesgo de choque eléctrico a las personas.

El símbolo de exclamación dentro de un triángulo equilátero, es para alertar al usuario de la presencia de instrucciones importantes de operación y mantenimiento (servicio) en la documentación que acompaña al equipo.

1. LEA LAS INSTRUCCIONES
Todas las instrucciones de seguidad y operación de su equipo Hafler, deben ser leídas antes de que el equipo sea conectado dléctricamente.

2. CONSERVE EL MANUAL DEL PROPIETARIO
Estas instrucciones de seguridad y operación, deben ser conservadas para futuras referencias.

3. CUADROS DE ADVERTENCIAS
Todas las advertencias en el equipo y en las instrucciones de operación, son importantes y deben ser seguidas.

4. SIGA LAS INSTRUCCIONES
Todas las instrucciones de uso y operación son importantes y deben ser seguidas.

5. CALOR
El equipo debe ser mantenido lejos de areas de alta temperatura, como por ejemplo: ventilaciones de calentadores, radiadores, estufas/hornos, hogueras, etc.

6. VENTILACION
El equip debe ser usado en áreas con ventilación adecuada. Deben er tornadas las precauciones necesarias para no impedir el flujo de aire dentro y alrededor del aparato.

7. AGUA Y HUMEDAD
El equipo no debe ser usado en el agua ó alrededor de ésta, tales como en una bañera, tanque o áreas de nado. También, el equipo no debe ser usado en áreas propensas a inundaciones, tales como en un sótano.

8. FUENTES DE PODER
El equipo debe ser conectado a una fuente de poder del mismo voltaje y frecuencia que el indicado en el panel trasero sobre el punto de entrada del cable de corriente.

9. PROTECCION DEL CABLE DE CORRIENTE
Los cables de corriente deben ser dispuestos de forma tal que no interfieran con el movimiento de objetos en la sala: personas, aspas de ventilación, carretillas, etc. También, es necesario tener cuidado de que el cable no esté punzado o cortado, y debe estar ubicado de forma tal que esto no ocurra, como podría suceder debajo de una alfombra o al pasar el cable por una esquina aguda, etc.

10. ATERRAMIENTO DEL CABLE DE CORRIENTE
El cable de corriente es del tipo aterrado de tres hilos, diseñado para reducir el riesgo de una descarga eléctrica procendent de un chasis energizado. Se asume que su longitud es suficiente para la mayoría de usos del equipo. El uso de extensiones y multienchufes no es recomendado, a menos que tengan el amperaje adecuado para poder suministrar la corrioente requerida pra la operación segura de todo el equipo conectado. Aun más, las extensiones deben proveer de la misma conección aterrada de tres hiles. Es importante que el enchufe se pueda introducir completamente en el receptáculo. Nunca remeva el pin de aterramiento en un intento por conectar el cable en un receptáculo de dos hilos no aterrado: use un adaptador de aterramiento que esté adecuadamente conectado a un punto de tierra.

11. PERIODOS SIN USO
Durante períodos prolongados sin uso del equipo, el cable de corriente debe ser desconectado de la fuente de electrixidad.

12. LIMPIEZA
El equip debe ser limpiado solo en la forma que se detalla en las instrucciones de operación.

13. INTRODUCCIÓN DE OBJETOS Y LIQUIDO
Deben ser tornadas precauciones con el fin de que objetos y/ó líquidos, tales como fluidos de limpieza y gaseosas, no sean derramados dentro del chassis del aparato.

14. DAÑOS QUE REQUIEREN DE SERVICIO
Los equipos Hafler deben ser llevados a servicio por personal calificado cuando:

a. El cable de corriente ó el enchufe haya sido dañado, ó

b. Objetos ó líquido hayan sido introducidos ó derramado en el equipo, ó

c. El equipo haya sido expuesto a lluvia, ó

d. El equipo aparenta no operar normalmente ó exhibe un marcado cambio en su desempeño, ó

e. El equipo se ha caído, o el chassis ha sido golpeado.

15. SERVICIO
El usuario no deberá intentar darle servicio al equipo más allá de lo que está descrito en el instructivo de operación. Todo lo demás, deberá ser referido a servicio por personal calificado.

16. CARRETILLAS Y SOPORTES
El equipo podrá ser usado con carretillas y soportes que tengan la fortaleza y estabilidad suficiente para el uso previsto.

La combinación equipo/carretilla deberá ser movida con cuidado. Rápidas paradas y arranques, excesiva fuerza y superficies imparejas, pueden causar el volcamiento del conjunto de carretilla/equipo.

17. SIN PARTES ACCESIBLES POR EL USUARIO
El P3100 no tiene partes accesibles para el usuario dentro del dispositivo y solo debe ser reparado por un técnico calificado.

FRANÇAIS

ATTENTION: INFORMATIONS IMPORTANTES DE SÉCURITÉ

La lumière clignotante du symbole de la flêche à l'intérieur d'un triangle équilatéral, à pour objet d'alerter l'utilisateur de la présence "d'un voltage dangereux" non-isolé à l'intérieur du produit, qui pourrait être de magnitude suffisante au risque d'éléctrocution.

Le point d'exclamation, à l'intériur d'un triangle équilatéral, à pour objet de prévenir l'utilisateur de l'importance des instructions de fonctionement et de maintenance, jointes à l'appareil.

1. LIRE LES INSTRUCTIONS
Le mode d'emploi et les mesures de sécurité de votre équipement Hafler devraient être consultés avant sa mise en marche.

2. CONSERVER LE GUIDE DE L'UTILISATEUR
Le mode e'emploi et les mesures de sécurité devraient être conservés pour des références futures.

3. CONSIDÉRATIONS DE MISE EN GARDE
Le mode d'emploi et les mises en garde concernant cet équipement sont de grande importance et devraient être suivis.

4. SUIVRE LE MODE E'EMPLOI
Le mode d'emploi et les conseils d'utilisation sont importants et devraient être suivis.

5. CHALEUR
Le matériel devrait être préservé loin de toute source de chaleur: radiateurs, cuisinière/fours, cheminées,…etc.

6. VENTILATION
Le matériel devrait être utilisé dans un endroit à bonne ventilation. Il reste nécessaire de respecter la circulation de flux d'air à l'intérier et autour du meuble.

7. EAU ET HUMIDITÉ
Le matériel ne devrait pas être utilisé près d'une source d'eau, telle qu'une baignoire, un évier, ou une aire de baignade. De plus, le matériel ne devrait pas être utilisé dans des lieux sujets aux innondations, tels que les sous-sols.

8. SOURCES D'ÉNERGIE
Le matériel devrait seulement être relié à une source d'énergie de même voltage et fréquence que celle indiquée sur le tableau arrière, au dessus de la fiche d'entrée de la prise de courant.

9. PROTECTION DE LA PRISE DE COURANT
La prise de courant devrait être arrangée de façon à ne pas interférer avec le déplacement d'objets (chariots, pales de ventillateurs…etc.) ou de personnes à l'intérieur de la pièce. D'autre part, il faudrait faire tres attention à ce que la prise ne soit pas percée ou coupée, ou disposée de façon à risquer de l'être, comme sous un tapis, autour d'un angle pointu…etc.

10. PRISE DE COURANT ÀTROIS FICHES
La prise de courant est composée de trois fiches, désignées à réduire le risque de décharge électrique de l'appareil.

Elle devrait être de longueur suffisante pour la plupart des utilisations de ce matériel. L'utilisation de rallonge t d'adaptateur est déconsellée à moins dêtre en mesure de fournir la charge électrique requise à un fonctionement sans risque, de tout matériel relié.

11. PÉRIODES DE NON-UTILISATON
Durant les périodes de non-utilisation, la prise de courant ne devrait pas être branchée à une source d'energie.

12. NETTOYAGE
Le matériel devrait être nettoyé en respectant les instructions indiquées.

13. PENETRATION DES LIQUIDES
Un attention particulière est éxigée quant à la dispersion de liquides tels que les produits de nettoyage et boissons, de façcon à éviter toute pénetration dans l'enceinte du matériel.

14. DÉGÂT NÉCESSITANT UNE RÉVISION
Le matériel Hafler devrait être révisé par des personnes qualifées de service après-vente, lorsque:

a. Les fiches ou la prise de courant ont été endommagé, ou:

b. De objets sont tombés sur le matériel, ou des liquides s'y sont dispersés, ou:

c. Le matériel a été exposé à la pluie, ou:

d. Le matériel ne semble pas fonctioner correctement, ou affiche un changement de performance, ou:

e. Le matériel a été renversé à terre, ou l'enceinte a été endommagée.

15. REVISION
L'utilisateur ne devrait pas essayer de réviser le matériel en allant plus loin que ce qui a été décrit dans le mode d'emploi. Toute autre réviion devrait être confiée à un personnel qualifié.

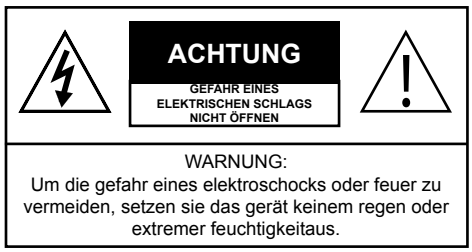
16. CHARRIOTS ET MEUBLES
Le matériel devriat être utilisé avec des charriots et meubles de qualité et stabilité suffisante à son utilisation préconçue.

L'ensemble du matériel et du charriot devrait être déplacé avec précaution. Des mises en marche et arrêts brusques, des collisions excessives ainsi que des surfaces inégales peuvent renverser l'ensemble du matériel et du charriot.

17. AUCUNE PIÈCE ACCESSIBLE AUX UTILISATEURS
Le P3100 ne contient aucune pièce accessible à l'utilisateur à l'intérieur de l'appareil et ne doit être réparé que par un technicien qualifié.

DEUTSCH

ACHTUNG – WICHTIGE SICHERHEITS – INFORMATIONEN



Der Blitz mit dem Pfeil, in einem gleihschenkligen Dreieck, soll den benutzer vor unisolierter “gefährlicher Spannung” innerhalb des Gerätes warnen.

Das Ausrufezeichen, in einem gleichschenkligen Dreieck, soll den Benutzer darauf aufmerksam machen, daβ dem Gerät wichtige Operations - und Service - Informationen beigefügt sind.

1. INSTSRUKTIONEN LESEN
Alle Sicherheits- und Operationshinweise Ihres Hafler Equipments sollten vor der Inbetriebnahme gelesen werden.

2. BETRIEBSANLEITUNG AUFBEWAHREN
Bewahren Sie die Bedienungsanleitung sorgfältig auf, damit Sie in dieser auch in Zukunft nachschlagen können.

3. WARNUNGEN BEACHTEN
Alle Warnungen des Gerätes und der Bedienungsanleitung sind extrem wichtig und müssen befolgt werden.

4. INSTRUKTIONEN BEACHTEN
Alle Operations- und Gebrauchshinweise sind extrem wichtig and müssen beachtet werden.

5. HITZE
Das Equipment sollte fern von Hitze ausstrahlenden Geräten aufgestellt werden, wie z.B. Heizungen, Öfen etc.

6. VENTILATION
Das Equipment sollte so aufgestellt werden, daβ eine ausreichende Ventialition gewährt wird.

7. WASSER UND FEUCHTIGKEIT
Das Equipment sollte nicht im oder in der Nähe von Wasser benutzt werden, wie z.B. in Schwimmbädem, Saunen etc. Es sollte ebenfalls nicht in Überschwämmungsgefährdeten Gebieten aufgestellt werden, wie z.B. Kellerräumen.

8. STROMANSCHLUβ
Das Equipment darf nur an eine Stromversorgung angeschlossen werden, die die gleichen Parameter aufweist, welche auf der Rückseite, über em Anschlußterminal des Gerätes, aufgelistet sind.

9. SCHUTZ DER ZULEITUNG
Die Zuletungen sollten so verlegt werden, daβ diese nicht in den Bewegungsbereich anderer Möbelstücke oder Personen hereinragen. Achten Sie darauf, das das Kabel nicht gequestscht oder durchschnittren wird, wie z.B. unter Schränken oder an scharfen Kanten etc.

10. MASSEANSCHLUβ
Das dreiadrige Anschlubkabel ist mit einem Erdungsleiter ausgestattet, welcher die Risiken eines Elektroschocks verringert. Das Kabel hat eine Länge, welche für die meisten Anwendungen völlig ausreicht. Wenn Sie Verlängerungskabel benutzen, achten Sie darauf, das dies die erforderlichen Ströme bertragen können. Benutzen Sie immerdreiadrige Verlängerungskable.

11. ZEITRÄUME IN DENE DAS GERÄT NICHT GENUTZT WIRD
Wird das Gerät über einen längeren Zeitraum nicht genutzt (z.B. Urlaub), ziehen Sie bitten den Netzstecker aus der Steckdose.

12. REINIGEN
Reinigen Sie das Gerät nur, wie in der Bedienungsanleitung detailliert beschrieben.

13. EINDRINGEN VON FREMDKÖRPERN
Achten Sie darauf, daβ weder Fremdkörper, noch Flüssigkeiten in das Gerät eindringen.

14. ERFORDERLICHER REPARATURSERVICE
Hafler Equipment sollte nur von qualifizierten Service-Technikern instand gesetzt werden, wenn:

a. Das Stromversorgungskabel beschädigt wurde

b. Eine Flüssigkeit in das Gerät eingedrimgem ist

c. Das Gerät Regen ausgesetzt wurde

d. Das Gerät nicht mehr ordnungsgemäβ funktioniert, ggf. nicht mehr die volle Leistung abgibt

e. Das Gerät runtergefallen ist oder das Gehäuse beschädigt wurde

15. SERVICE
Der Benutzer sollte nur den Service ausführen, der in der Bedienungsanleitung für den Benutzer freigegeben wird. Den weiterführenden Service sollte nur von qualifizierten Tevhnikern durchgeführt werden.

16. AUFSTELLUNG
Das Equipment sollte so aufgestellt werden, daβ der gewählte Untergrund die erforderliche Stabilität aufweist, so daβ eine gefahrlose Bnutzong gewährleistet wird.

Das Equipment und der Untergrund sollte mit äuberster Vorsicht bewegt werden. Bei schnellen Bewegungen oder starkem Abbremsen, kann es zum Umkippen des Equipments kommen.

17. GEEN VOOR DE GEBRUIKER TOEGANKELIJKE ONDERDELEN
De P3100 heeft geen voor de gebruiker toegankelijke onderdelen in het apparaat en mag alleen door een gekwalificeerde technicus worden onderhouden.

ITALIANO

NOTARE – IMPORTANTI INFORMAZIONI SULLA SICUREZZA

Il simbolo del fulmine in un triangolo equilatero vuole avvertire della presenza di tensioni elevate non isolate e di valore sufficiente per costituire rischio di shock elettrico alle persone.

Il simbolo del fulmine in un triangolo equilatero vuole avvertire della presenza di tensioni elevate non isolate e di valore sufficiente per costituire rischio di shock elettrico alle persone.

1. LEGGETE LE ISTRUZIONI
Tutte le istruzioni riguardanti la sicurezza ed il funzionamento devono essere lette prima di applicare tensione all'apparato.

2. CONSERVATE IL MANUALE
Queste istruzioni riguardanti la sicurezza ed il funzionamento devono essere conservate come riferimento futuro.

3. AVVERTENZE
Tutte le avvertenze poste sull'apparato e sul libretto di istruzioni sono importanti e devono essere seguite.

4. SEGUIRE LE ISTRUZIONI
Tuttle le istruzioni operative e di funzionamento devono essere seguite.

5. TEMPERATURA
L'apparato deve essere mantenuto lontano da tuttle le zone ad alta temperature, termosifoni, termoconvettori, stufe e forni, caminetti ed altro.

6. VENTILAZIONE
L'apparato deve essere posizionato in aree convenienti per una corretta ventilazione. Prestare attenzione che sia consentita circolazione d'aria attorno e dentro il cabinet.

7. ACQUA E POLVERE
L'apparato deve essere posizionato lontano da zone contenenti acqua, come vasche a bagno, acquari e piscine. Inoltre non deve essere impiegato in aree soggette ad allagamento, come le cantine.

8. REQUISITI DI ALIMENTAZIONE
L'apparato deve essere connesso solo ad un'alimentazione della stessa tensione e frequenza di quanto scritto sulla parte posteriore del telaio.

9. PROTEZIONE DEL CAVO DI ALIMENTAZIONE
Il cavo di alimentazione deve essere posizionato in modo di non interferire con il movimento di oggetti nella stanza: persone, ventilatori, carrelli, ecc…prestate attenzione anche che il cavo non sia tagliato o spellato e che non possa tagliarsi e spellarsi.

10. MESSA A TERRA
Il cavo di alimentazione è del tipo a tre fili con terra ed è progettato pr ridurre il rischio di shock elettrici. Si presume che sia della lunghezza sufficiente per la maggior parte degli impieghi. L'impiego di prolunghe e adattatori è sconsigliato se questi non garantiscono la potenza sufficiente per i corretto fuinzionamento degli apparati connessi. E altersì importante che vengano sempre impiegate prolunghe con la configurazaione a tre fili con terra.

11. PERIODI DI NON UTILIZZO
Durante lunghi periodi di non utilizzo, staccare il cavo di alimentazione.

12. PULIZIA
L'apparato deve essere pulito solo come indicato dalle istruzioni.

13. INGRESSO DI OGGETTI E LIQUIDI
Si deve prestar attenzione che oggetti e liquidi, come fluidi detergenti e bibite, non vengano versati all'interno dell'apparato.

14. RIPARAZIONI
Gli apparati Hafler devono essere riparati da personale qualificato quando:

a. Il cavo di alimentazione o la spina sono danneggiati

b. Oggetti sono caduti all'interno del telaio o quando del liquido è entrato

c. Quando l'apparato è stato esposto a pioggia

d. Quando l'apparato non sempra funzionare normalmente o quando esibisce un cambiamento di prestazioni o

e. Quando è caduto o il telaio è stato danneggiato

15. ASSISTENZA
L'utente non deve tentare di prestare assistenza all'apparato, se non per quanto esposto nelle istruzioni. Tutti gli altri interventi devono essere effettuati da un tecnico specializzato.

16. CARRELLI E STAND
L'apparato deve essere impiegato su carrelli o stand solo se questi sono sufficientemente solidi e stabili per la funzione a cui si vuole dedicarli.

La combinazione di carrello ed apparato deve essere mossa con cautela. Fermate e partenze improvvise, forze eccessiva e superfici irregolari, possono ribaltare la cominzione carrello e apparato.

17. NESSUNA PARTE ACCESSIBILE ALL'UTENTE
Il P3100 non ha parti accessibili all'utente all'interno del dispositivo e deve essere riparato da un tecnico qualificato.

WARNING

This Hafler amplifier is to be installed and/or used in accordance with the appropriate electrical codes and regulations as described by the local building authority in your state or province. Please consult with these authorities before using or specifying a Hafler amplifier to ensure it meets local regulations. As the installation is completely out of our control, Hafler and its employees, directors, parent company, distributors and resellers are not responsible for misuse or inappropriate application of this amplifier. It is solely the responsibility of the customer or specifying engineer to ensure its proper and safe use.

WARNING

It is the responsibility of the user to abide by all local electrical regulations – if you are unsure, contact your local building authority to ensure the proper and safe utilization of this product.

P3100

Studio Power Amplifier

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Thank you for purchasing the Hafler P3100™, a two channel professional power amplifier designed to please the most demanding audiophile or studio engineer.

Though the P3100 has been designed to be easy to set up and operate, we strongly urge reading over the Installation and Operation portions of this manual before putting the amplifier into service. If you have any questions not covered within this manual, please visit the Hafler FAQ page. This is where we post questions from users along with periodic updates. If afterwards you still do not find the answer to your question, feel free to send us an email at info@hafler.com and we will do our very best to respond in short order.

WARNING

It is the responsibility of the user to abide by all local electrical regulations – if you are unsure, contact your local building authority to ensure the proper and safe utilization of this product.

OVERVIEW

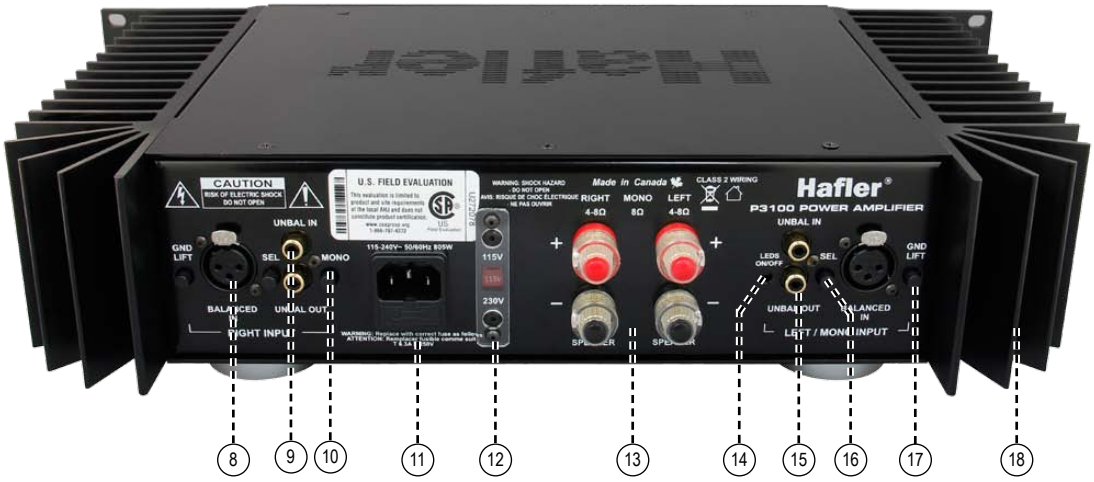
The circuitry used in the P3100 is the latest refinement of our trans•nova (TRANSconductance Nodal Voltage Amplifier, US Patent 4,467,288) circuit. It has been proven to offer sound quality to satisfy the most analytic audiophile or the most demanding professional. The natural sound and realistic reproduction have made trans•nova amplifiers preferred in many critical installations. Since the pioneering use of lateral MOSFETs in the DH-200 amplifier, they have proven extremely fault tolerant even in abusive situations. This sturdiness enables the amplifier to drive reactive speaker loads without the performance and sound penalties imposed by elaborate protection schemes. Passive cooling with large heatsinks allow for low mechanical noise, and special care was taken to reduce noise and distortion at every possible stage. The high performance specifications of the P3100 means that it is equally at home in a recording or mastering studio as it is in an audiophile listening room.

Recording Studio
Hafler has a long history of use in professional recording studios with unparalleled sound quality and reliability.

Two Channel Listening
The P3100 delivers rich detail and highly linear amplification for the discerning audiophile's listening room.

Mastering Studio
Trusted by the 'golden ears' of the recording industry, two bridged-mono P3100s provide incredible headroom and quality for use in a mastering studio.

1. **GAIN:** Individual level adjustment for each channel.
2. **BALLISTIC LEDs:** Idle, level and clip indicators show output of the P3100.
3. **POWER:** Soft start power switch protects loudspeakers from turn-on transients.
4. **CLIP:** LED indicators to show when the signal is clipping.
5. **IDLE:** LED indicators to show when the P3100 is on but no signal is present.
6. **FAULT & HEAT:** LEDs illuminate when a fault or excessive heat is detected.
7. **RACK EARS:** Allows the P3100 to be mounted in standard 19” 2RU rack enclosure.

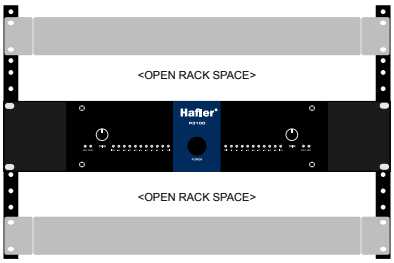


8. **BALANCED INPUT:** XLR line input for connections from pro level sources.
9. **UNBALANCED IN:** RCA line input for connections from consumer level sources.
10. **MONO:** Allows the left channel to feed both speaker outputs in mono operation.
11. **POWER:** IEC connection for power cable.
12. 1**15V/230V:** 115V or 230V switch allows for use around the globe, features security cover to prevent accidental switching.
13. **SPEAKER OUTPUTS:** Gold-plated binding posts that adapt to all popular speaker cable sizes.
14. **LEDS ON/OFF:** Turns off front panel LED level indicators.
15. **UNBALANCED OUT:** Parallel to UNBAL IN for sending source signal to another destination.
16. **INPUT SELECTOR:** Chooses between the balanced or the unbalanced inputs.
17. **LIFT:** Disconnects Pin-1 audio ground on the balanced inputs to remove hum and buzz.
18. **HEAT SINKS:** Cools the amplifier and eliminates the need for noisy fans.

INSTALLATION

Location and Mounting

The P3100 power transformer can generate a substantial magnetic field, so caution should be exercised in the placement of low level components such as a mixer or mic preamp to avoid inducing noise in the low level circuitry. The amplifiers can also produce considerable heat in normal operation so the primary consideration when determining a location for the amplifiers is to allow for adequate ventilation. The large heatsinks provide unrestricted airflow, but care must be taken to keep the slots in the top and bottom cover clear. If the amplifier is mounted in an equipment rack, make sure adjacent equipment does not impede cool air flow.



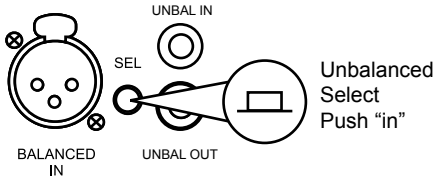
Connecting the Power

The P3100 operates from a 120 volt, 60Hz AC power line or 230 volt, 50-60Hz AC power line. Connection is made by a 14-gauge, IEC, grounded line cord. The voltage is preset at the factory for the country where the P3100 is shipped but may be changed on the rear panel is case the P3100 is operated in another country. Users in Japan should use the P3100 with a 100V to 120V step up transformer rated at least for 700VA if they wish to obtain the full rated power of the P3100.

For safety considerations only a properly grounded (earthed) receptacle should be used. If a grounded circuit is not available do not cut or remove off the ground pin. Mounted on the rear panel is the line fuse which interrupts the power to the amplifier. If this fuse blows replace it only with the same type and rating fuse. The correct replacement fuse value is printed on the rear panel of the amplifier. If the new fuse blows, this is an indication of a fault with the amplifier. Servicing should be performed only by a qualified technician.

Connecting Inputs

The input jacks are located on the rear of the amplifier. XLR input jacks are provided for balanced line operation and RCA phono jacks for unbalanced sources. An input select switch is provided on each channel to choose between the XLR balanced input and the RCA unbalanced input. A ground lift switch is also provided on each channel should you encounter hum or buzz from ground loops.



Connecting Outputs

The speaker output connectors are dual binding posts. These binding posts will directly accept wire gauges as thick as 6 AWG (4.12mm OD). To determine the cable gauge required for the distance of cable for your setup please refer to the chart on pg.5. Safety regulations prohibit the use of dual binding posts and the posts are spaced to disallow this. Before making connections, ensure the amplifier is turned off along with all of the source equipment. This will avoid loud plug-in and connection transients that can damage more sensitive components such as tweeters.

It is also very important that you do not connect loudspeakers that are below the rated impedance of the P3100. This amplifier is capable of driving loads down to 4 Ohms, but not less. Driving loads below 4 Ohms can lead to overheating and premature part failure. In bridged mono use, the P3100 should be connected to a speaker with an impedance of 8 Ohms or greater. Under no circumstances should the output terminals of the P3100 be short-circuited.

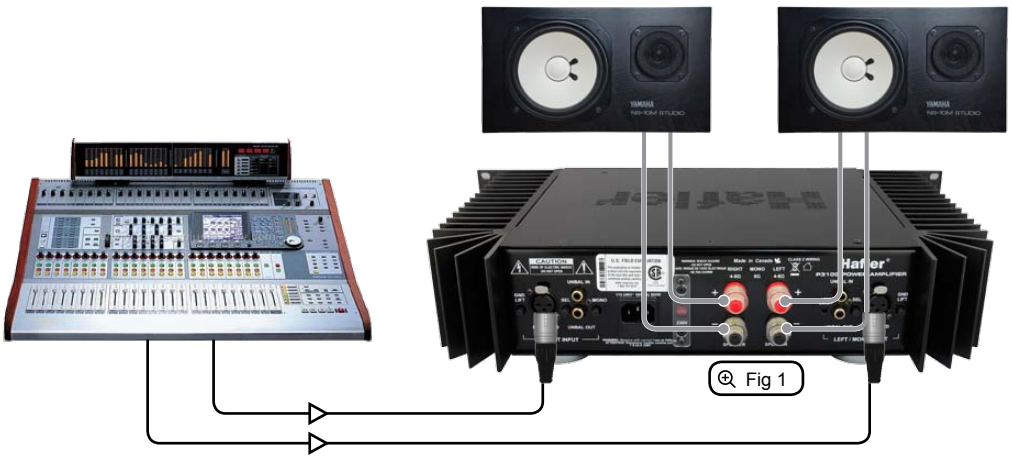


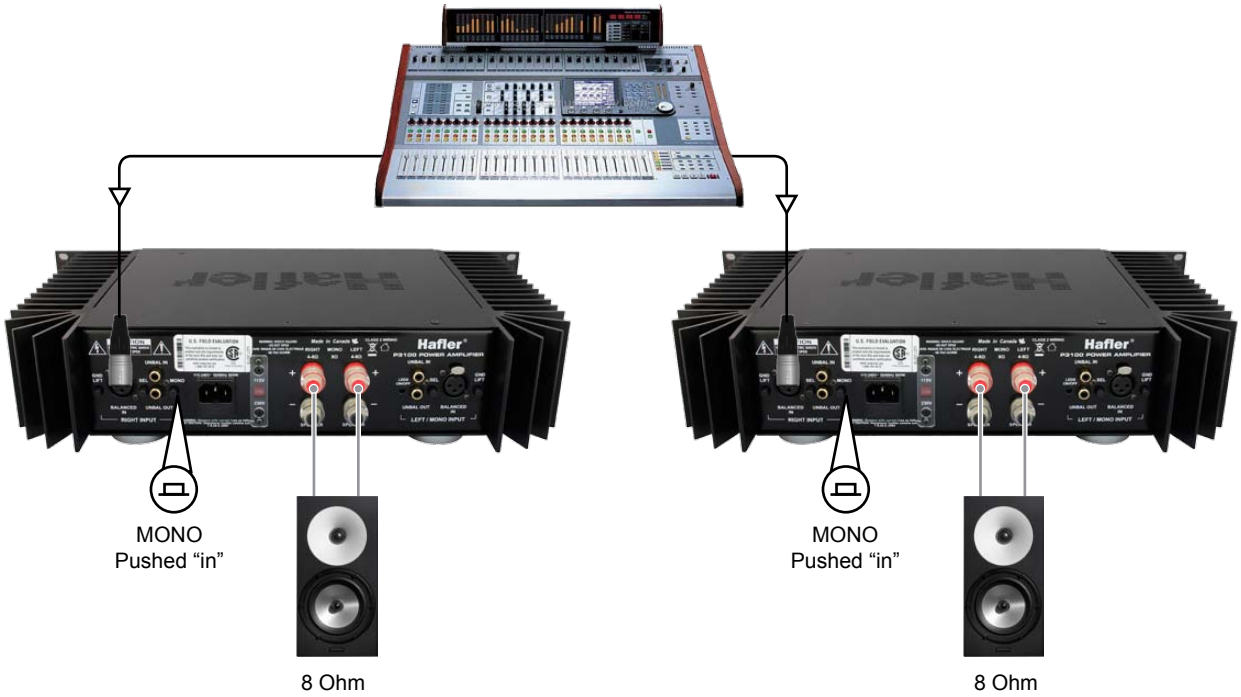
Fig 1

Gold-plated binding post adapt to any size cable wire.

Bridged Mono
For systems with high power requirements, the amplifiers can be configured for single channel bridged mono operation. To bridge the amplifier, set the rear panel MONO switch to the Mono (In) position. The Channel 1 input and level control is used and the Channel 2 level control must be set to its maximum gain position. The speaker is connected to the RED output binding posts.

⚠ When the amplifier is bridged the output is floating. Any speaker which requires a common ground from the amplifier output cannot be used in this application.

⚠ Since a bridged amplifier shares the load between the two channels, each channel will effectively drive half of the load. For bridged mono operation we recommend using an 8 Ohm load as the minimum impedance. Less than 8 Ohm operation in bridge mode is outside the operating parameters for the P3100 and should not be done.



MINIMUM RECOMMENDED SPEAKER CABLE GAUGE

Distance	8 Ohm (150W)	4 Ohm (200W)	8 Ohm - Bridged Mono (400W)
10’ (3m)	16 AWG (1.29mm)	14 AWG (1.63mm)	16 AWG (1.29mm)
20’ (6m)	14 AWG (1.63mm)	10 AWG (2.59mm)	14 AWG (1.63mm)
30’ (9m)	12 AWG (2.05mm)	8 AWG (3.26mm)	12 AWG (2.05mm)
50’ (15m)	10 AWG (2.59mm)	6 AWG (4.12mm)	10 AWG (2.59mm)
100’ (30m)	6 AWG (4.12mm)	N/A	6 AWG (4.12mm)

OPERATION

Power Switch
The POWER switch is located on the front panel of the amplifier. A front panel IDLE LED indicates when the amplifier is active. Standard practice is to turn the amplifier on last and off first when switching components to prevent sending damaging transients to the speakers.

There is a time-delayed “soft start” in the P3100 that mutes the sound for several seconds after startup. In the case of an entire recording system being turned on at the same time with a power bar this should eliminate any loud thump. On turnoff, there is a sense circuit that will mute the P3100 fairly quickly but when an entire system is shut off at the same time as from a power bar being turned off, if any prior equipment thumps badly on turnoff, a small amount of this may pass through to the speakers. Therefore, in the case of turning the system on or off with a power bar, the level controls should be turned to minimum before switching on and again just before switching off.

Level Control
The input sensitivity for each channel can be adjusted individually using the level controls on the front panel. The gain control on an amplifier is usually set fully clockwise to its maximum sensitivity. The level controls on the P3100 are not meant to be volume controls. They are meant to be trim controls. That is, they are normally set to maximum level and are moved counter-clockwise to make corrections for any imbalances in rooms that may not be symmetrical.

Short Circuit Protection
Due to the self-protecting properties of the output power MOSFETs, there is no need for sonically degrading voltage and current limiting circuits. To protect the amplifier from problems which may occur in the speaker line the P3100 includes a FaultSafe™ overload detection circuit. In the event of a short in the speaker load or cables, the speaker detection circuit will shut down that channel and light the front panel FAULT indicator. If this happens, correct the fault and turn the amplifier off, then back on to reset.

LED Indicators
Amplifier operation is monitored via the front panel with four status LEDs as well as 9 meter LEDs for each channel. These indicators can be used for system troubleshooting in case of aberrant behavior. The LEDS from the outermost to the centermost are:

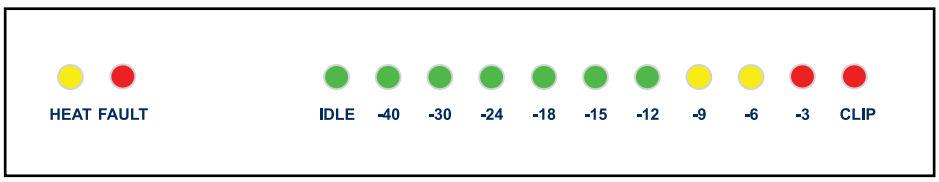
Heat Indicates when the thermal protection circuit has shut down the amplifier. This occurs when the heatsink temperature exceeds 90°C (194°F). This will also illuminate the FAULT LED. When the amplifier cools down below 80°C (176°F) the amplifier will restart.

Fault Indicates when the output overload monitor detects a potentially damaging short and shuts down amplifier operation. This also lights when the P3100 has a thermal shutdown or when driven too far into clipping for too long. After clearing the fault, restore normal function by turning the amplifier off, then on again.

Idle Indicates the amplifier is powered on and the internal low voltage power supply is operating properly.

Meter LEDs Monitors the amplifier output and gives an approximate indication of amplifier power output.

Clip These are the LEDs closest to the power switch. They light when the drive signal voltage exceeds the maximum for linear operation of the output MOSFETs.



Warm Up
While the P3100 may be used with no ill effects whatsoever as soon as it comes out of muting, in order to achieve the best sonic performance from the amplifier, we recommend letting it warm up for 1 hour before beginning any critical listening. The amplifier may not deliver its full potential sound quality before this time has passed.

Cleaning and Maintenance
There is no requirement for regular maintenance on the electrical components of the amplifier. If the outer case becomes soiled, lightly spraying a soft cloth with an ammonia-based cleaner should remove any grime. In the event of regular overheating, the P3100 should be brought to a professional service technician for cleaning and testing of the internal components.

FAQ

Do I need to allow the P3100 to warm up before using?
The P3100 will work immediately when turned on, however it will sound best after it has reached thermal stability. This may take up to one hour.

Will disconnecting the speakers when the amplifier is powered up damage the amp?
Although you may not damage the amplifier, you can damage other components such as loudspeakers when connecting and disconnecting the speaker terminals. Thus, it is always best practice to turn the amp off when making connections.

Is the Hafler P3100 specified in RMS or peak power?
All Hafler amps are specified in RMS power which describes the average output of the amplifier when run for a period of time. Peak power is an instantaneous measurement that describes the maximum rail to rail voltage the amp can produce with a minimum level of distortion.

What is the difference between a MOSFET and bipolar transistor?
The main advantage of the MOSFET over a typical bipolar transistor is that it is much more efficient at managing and producing gain, thus requiring gain stages to produce the same output. Lateral MOSFETs were developed specifically for audio. Although more expensive, these are employed in the Hafler P3100.

What is the difference between a class AB and class D amplifier?
Class AB amplifiers employ a traditional approach to the amplification with transistors and large power transformers to produce the output. Class D amplifiers employ digital switching to amplify the signal. Class D amplifiers are preferred in live concert touring and for commercial installations due to the light weight and high efficiency. Class A and AB amplifiers are preferred by recording engineers and audiophiles for their sonic quality.

What is damping factor and what can I do to maximize it?
The damping factor is best described as the amplifier's ability to control the speaker excursion. A higher damping factor will result in a tighter sounding bass. To maximize the damping, it is best to use thick, heavy gauge speaker cables, particularly when driving long cables.

What speaker cable gauge should I use with my speakers?
As a rule, the thicker the better. For speakers that are within 2 meters (6') of the amplifier, no less than 14 gauge cables should be used. 12 gauge or even 10 gauge wires made from stranded copper are preferred as these will transfer power more efficiently without loss.

Will using the balanced inputs sound better than using the unbalanced inputs?
No. The balanced inputs are there for convenience. Internally, the amplifier signal path is unbalanced.

Does the P3100 get hot to the touch?
No. It will get warm, but not hot.

Can I stack multiple amplifiers on top of each other without fear of overheating?
You can, but allow at least one rack space between amps to prevent overheating.

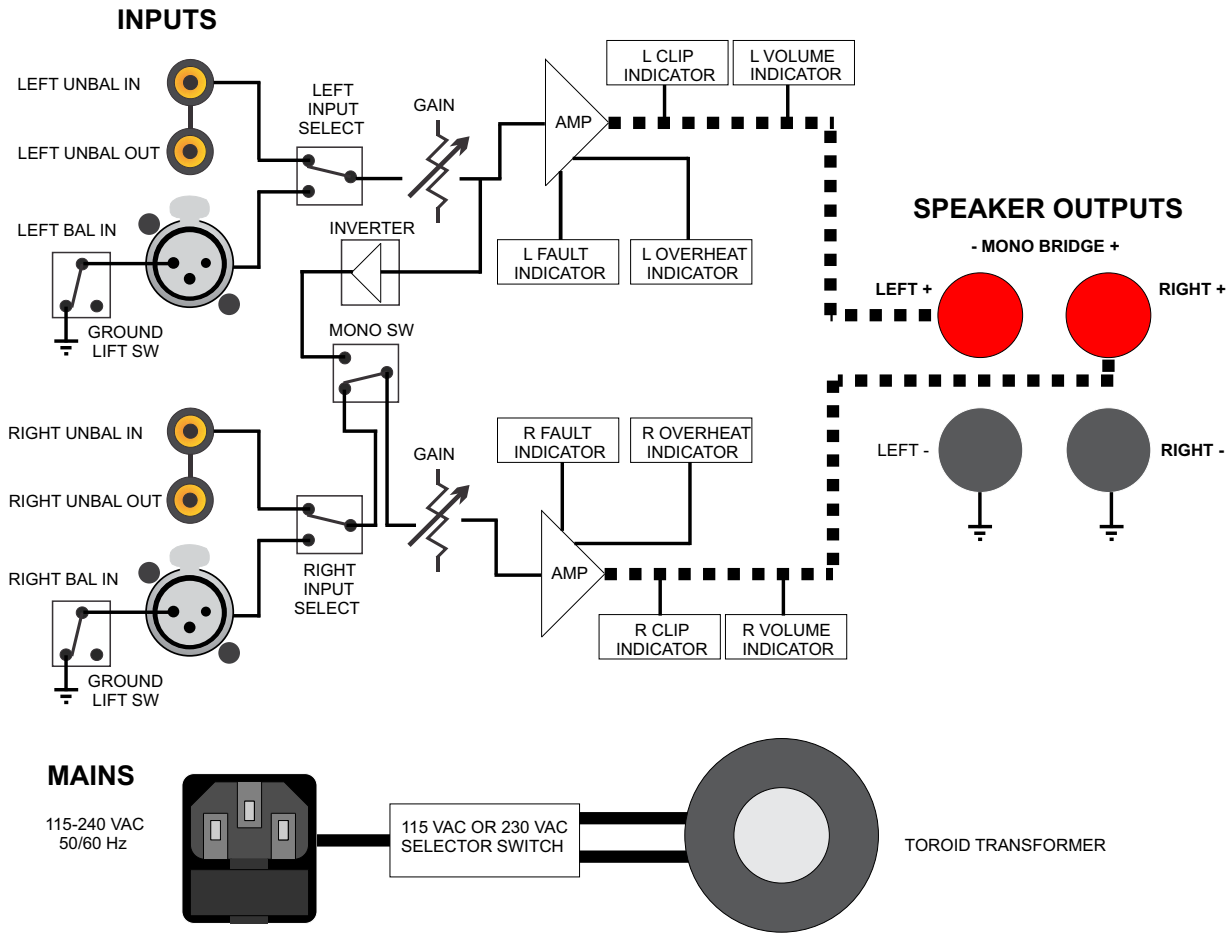
Can I still mount the P3100 in a rack if there's no room for free space above or below the amplifier?
Yes, The P3100 can be mounted in tight quarters, but care must be taken to ensure adequate ventilation is provided. Circulating fans should be considered if there is no room to leave free space next to the P3100.

SPECIFICATIONS

Audio circuit type:	Transnova MOSFET Output - Class AB
Frequency response:	10Hz to 30kHz (±0.25dB)
Power Rating:	150 Watts/Channel @ 8 Ohms 200 Watts/Channel @ 4 Ohms 400 Watts bridged/mono @ 8 Ohms
Total Harmonic Distortion (THD):	<0.15% (15Hz-50kHz)
Dynamic range:	>100dB
Signal-to-Noise:	102dB “A” weighted
Full Power Bandwidth:	0.15Hz to 300Khz (+0/-3dB)
Slew Rate:	100V/µs
CMRR (Common Mode Rejection Ratio):	75dB at 1kHz
Input Impedance:	47k Ohms per phase balanced
Gain:	+14dB min. / +29dB max
Input Sensitivity Range:	620mV to 3.5V (@ 8 Ohms) per phase balanced 505mV to 2.8V (@ 4 Ohms) per phase balanced
Damping Factor:	400 (to 1kHz) 200 (to 10kHz) 18 (to 100kHz)
Intermodulation distortion:	0.022% @ 1W/8 Ohms
Power Consumption:	35W (idle power) 700W (max. power – 8 Ohms)
Indicators:	Overheat, fault, idle (power on), clip, signal
Dimensions:	19” W x 9.875” D x 3.5” H (2 rack spaces) (483 x 251 x 89mm)

Specifications subject to change without notice

BLOCK DIAGRAM



Specifications subject to change without notice

NOTES

NOTES

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THREE YEAR TRANSFERABLE LIMITED WARRANTY

HAFLER (A division of Radial Engineering Ltd.) (“Hafler”) warrants this product to be free from defects in material and workmanship and will remedy any such defects free of charge according to the terms of this warranty. Hafler will repair or replace (at its option) any defective component(s) of this product (excluding finish and wear and tear on components under normal use) for a period of three (3) years from the original date of purchase. In the event that a particular product is no longer available, Hafler reserves the right to replace the product with a similar product of equal or greater value. In the unlikely event that a defect is uncovered, please call 604-942-1001 or email service@hafler.com to obtain a RA number (Return Authorization number) before the 3 year warranty period expires. The product must be returned prepaid in the original shipping container (or equivalent) to Hafler or to an authorized Hafler repair centre and you must assume the risk of loss or damage. A copy of the original invoice showing date of purchase and the dealer name must accompany any request for work to be performed under this limited and transferable warranty. This warranty shall not apply if the product has been damaged due to abuse, misuse, misapplication, accident or as a result of service or modification by any other than an authorized Hafler repair center.

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