



SXH2

Headphone Amplifier Module

Owners Manual





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Introducing the Perreaux Silhouette Series

Designed as a range of high quality, yet affordable modules; the ‘Silhouette’ series will compliment and enhance your existing system.

Drawing on our extensive knowledge gained from more than a quarter of a century of developing highest quality audio products, the ‘Silhouette’ concentrates our legendary design and build quality into a compact package without sacrificing performance.

The Perreaux ‘Silhouette’ series provides performance levels never before seen in its class.

Key Features

- Class A signal stages
- Highest quality internal power supply featuring a custom designed, fully shielded toroidal transformer and 22000 μ F of smoothing capacitance
- Optimal internal layout incorporating total separation between channels
- Enhanced audio design featuring highest quality PCB and minimal internal wiring
- Gain selection switch
- Line-out connections
- High power output
- Stable down to 4 Ω
- Dual stereo headphone jacks
- Compact
- Stylish

The Perreaux “Silhouette” series takes you even closer to the elusive goal of “The Perfect Re-Creation of a Musical Event”.

From all of us at Perreaux Industries Limited, thank you for choosing the Perreaux Silhouette Series SXH2 Headphone Amplifier.



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Important Safety Instructions

Note:

Please read all instructions carefully before attempting to operate your Perreaux "Silhouette" SXH2 Headphone Amplifier.

ALWAYS switch off power to your system before attempting to connect or disconnect cables.

ALWAYS disconnect your system from the mains before attempting to clean your unit.

ALWAYS keep electrical equipment out of reach of children.

ALWAYS unplug sensitive electronic equipment during electrical storms.

NEVER disconnect the mains earth from the system.

NEVER operate the SXH2 with the cover removed.

NEVER use any liquid inside the SXH2.

NEVER bypass any fuse.

NEVER attempt to repair the SXH2. In the event of a problem, please contact your Perreaux dealer.

NEVER expose the SXH2 to extremely high or low temperatures.

NEVER operate this product in an explosive atmosphere.



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1 Unpacking and Placement

Unpacking Procedure

The SXH2 is packaged for maximum protection. To open, sit the box upright and cut the reinforced tape at the top of the box. The product can now be removed.

Pull the foam protecting end-caps off either side of the unit and remove the black material covering.

The SXH2 Headphone amplifier is now unpacked and ready for further installation.

Note:

Please retain all packaging material for future transport.

Box Contents

- 1 x SXH2 Headphone amplifier
- 1 x Product manual
- 3 x Performance analysis charts
- 1 x Detachable AC power cord

Placing Your SXH2

The SXH2 should generally be placed close to your source equipment, thus keeping interconnect cabling between the SXH2 and associated components as short as practical. This will reduce the systems susceptibility to radio frequency interference and the negative effects associated with long cables.

Ventilation Requirements

The SXH2 is a low power amplifier. Ventilation requirements are not considered an important factor in product placement.

In the event that the SXH2 is to be incorporated into custom cabinetry, please refer to the dimensional information provided in the Physical Dimensions section of the manual (Chapter 12).

If you are like us, the first thing you will want to do is to play your favourite piece of music through your new SXH2. The following instructions are written to enable you to achieve this as quickly as possible. These are not comprehensive instructions, but are designed to enable you to play music now!

Note: Please take the time to read the SXH2 manual thoroughly as it incorporates many features, which will enhance its operation.

Placement

The SXH2 is a sensitive low power amplifier and best results will be achieved when placed away from potential interference from other components and electrical devices, for example AC mains cords/outlets, transformers, high power amplifiers, computers, etc.

Place the SXH2 close or near the source component in order to make as short a connection as possible.

Turn off associated components

This minimises the potential to damage any other components when connecting your SXH2 into the system.

Connect source to SXH2

Connect the audio output from the source component to the inputs at the rear of the SXH2. Refer to Chapter 4 for Rear Panel information.

Connect headphones to SXH2

Connect a set of headphones to one of the jacks on the front panel. Refer to Chapter 3 for Front Panel information.

Note: Make sure the nominal impedance of the headphones is not lower than 8Ω.

Switch on SXH2

Insert the power cord supplied into the rear of the SXH2 and into the wall. Switch on the socket at the wall and turn on the power of the SXH2 by setting the power switch down.



Caution! Prior to connecting the AC mains, please check the voltage label on the rear panel to ensure that your unit conforms to the power supply in your area. Never attempt to connect the unit to the incorrect voltage.

Switch on source component

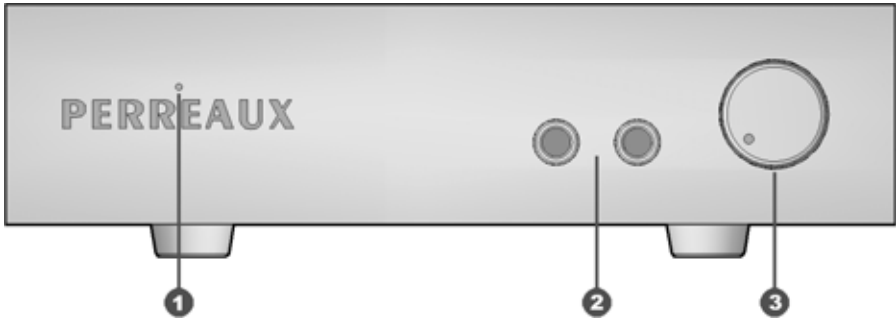
Power up your source component and start your favourite recording. Slowly increase the SXH2 volume to achieve a comfortable listening level.

CONGRATULATIONS!

Now that you have achieved your first objective, sit back, relax and please read the rest of the manual at your own pace in your favourite armchair whilst sipping a hot cup of coffee. You'll find the whole experience much more pleasurable whilst listening to music.

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Front Panel Functions



1 Power LED

This blue LED indicates the power status of your SXH2 headphone amplifier.

2 Headphone Jacks

Two 6.35mm (1/4") stereo headphone jacks are provided, allowing a second person to enjoy the pure sound offered by the SXH2. The construction of the jacks makes for effortless, crackle and pop-free insertion, and will give a lifetime of continuous contact performance.

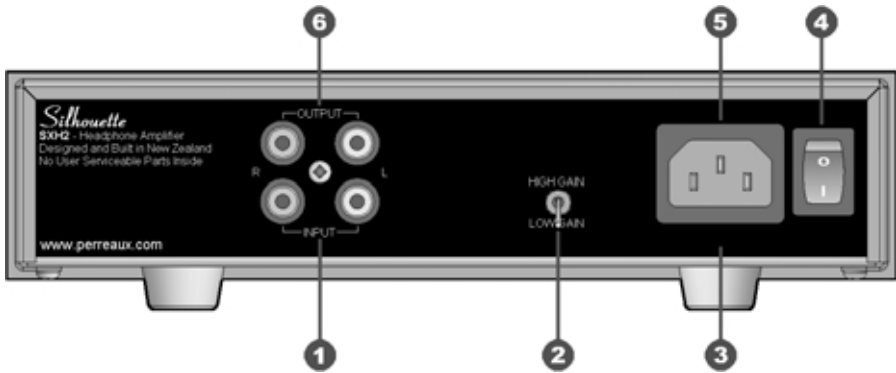
Note: Please ensure that the resulting impedance of the two headphone sets is not below 8Ω. Use the following equation to calculate the total impedance: $R_T = (R_1 * R_2) / (R_1 + R_2)$.

3 Volume Control

The high-quality, machined aluminium knob is the sole user interface, reminding the user at every touch of the superior build quality designed into the SXH2. Volume control motion is smooth and accurate, providing absolute control with near infinite gain resolution.

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Rear Panel Functions



1 Right and Left Line Inputs

Input from source component, accepts a standard unbalanced input (RCA). The left channel connection is on the right when looking from the rear, indicated by white inner ring. For more information on input specifications, please refer to Chapter 11.

2 Gain Selection Switch

Select HIGH gain or LOW gain to provide the best possible volume range for your particular headphones, enabling the optimum listening level to be achieved.

3 Serial Number/Voltage Label

The serial number is unique to your SXH2. Please record this number and store it in a safe place. For any service related enquiry, please be prepared to quote the product serial number to Perreaux personnel or their service representative.

The voltage displayed in this area is the **ONLY** voltage that can be accepted by the unit.

Caution!

Never attempt to connect the unit to the incorrect voltage.

4 On/Off Switch

When operating the switch down, power is applied to the SXH2.

5 AC Mains Input

An IEC-standard mains input is provided at the rear of the unit. The AC cord set is removable, allowing it to be upgraded at your will.

6 Right and Left Line Outputs

Line level output, accepts a standard unbalanced input (*RCA*). The left channel connection is on the right when looking from the rear, indicated by white inner ring. For more information on input specifications, please refer to Chapter 11.

Perreux has been designing and manufacturing only the highest quality audio componentry for more than a quarter of a century. Technology has continued to evolve rapidly over that time and our knowledge and application of design, materials and manufacturing techniques has advanced in tandem with this. Today's Perreux range comes closer to fulfilling our shared vision than at any other time in the past.

The SXH2 has been developed to meet customer demands for compact higher quality products. Careful attention has been taken throughout the development phase, not to make compromises that would degrade the high quality of reproduction that the unit is capable of delivering.

To follow is a discussion on some of Perreux design philosophies that have been incorporated into the entire range.

Minimalist Design

Leading British architect, John Pawson, writes:

“The Minimum can be defined as the perfection that an object achieves when it is no longer possible to improve it by subtraction. This is the quality that an object has when every component, every detail, and every junction has been reduced or condensed to the essentials. It is the result of the omission of the inessentials”.

Perreux has historically embraced the minimalist ethic from an audio design perspective only. The concept of “less equating to more” has been at the heart of all Perreux audio designs for more than a quarter of a century. Our current product offering takes the minimalist ethic to new levels by totally embracing the concept.

Minimalist Electronics

We wish to maximise the quality of your listening pleasure by keeping the componentry and signal path as uncluttered, short and clean possible. All components in the signal path, even those of the highest quality have an effect on the signal, thereby altering the quality of the reproduction in some way. Our aim is to recreate in its entirety, the original performance by not adding or subtracting anything, irrespective of the source.

Minimalist Aesthetics

Our products appeal to those who seek the ultimate in audio exclusivity, namely the perfect blend of “form and function”.

“Form and function” are both tough masters. We make no excuses for producing some of the most distinctive high-end audio products on the planet. We let “form and function” blend together in perfect harmony. This surely is the essence of true minimalist utilisation.

Minimalism in a Wider Context

John Pawson writes:

“Clearly simplicity has dimensions to it that go beyond the purely aesthetic: it can be seen as the reflection of some innate, inner quality, or the pursuit of philosophical or literary insight into the nature of harmony, reason, and truth”.

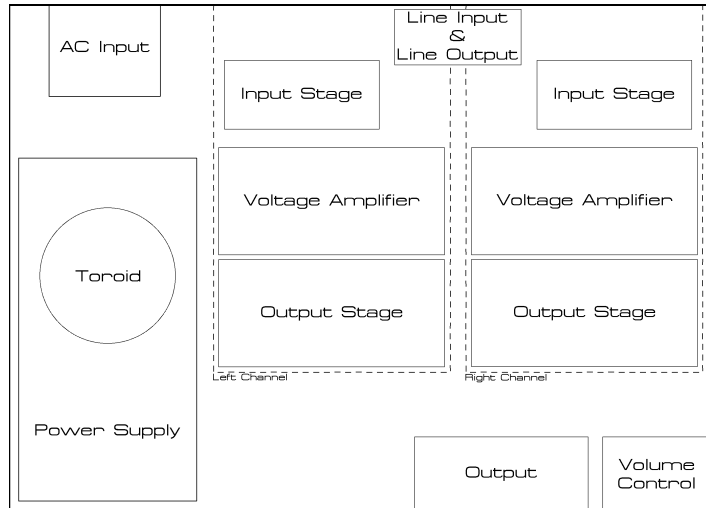
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Special Design Features

Construction

The beautifully styled curving front panel is milled from solid 6.0mm (0.2”) thick aluminium extrusion and finished in a satin chrome electroplate. The front panel also features the **PERREAUX®** logo machined into the solid aluminium. The chassis and cover are both manufactured from heavy gauge steel. No cover fixing screws are visible. The “Silhouette” SXH2 is stylish yet functional and exhibits typical hallmarks of the Perreaux brand.

Circuit Topology

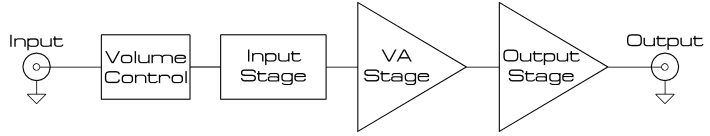


The Power Supply

The SXH2 has an internal power supply. These designs are invariably more sophisticated than those featuring external plug-in power packs. Special attention must be paid to shielding, supply transformer design, capacitance and earthing.

Perreaux has specially developed a fully shielded internal toroidal power supply. A total of 22000µF of smoothing capacitance and low pass RC filters are employed to provide a “rock-solid”, super low ripple, linear DC power supply.

Single Channel Block Diagram



Input Stage

Utilising a stable current source, along with accurate current mirroring circuitry, the input stage of the SXH2, in combination with the overall circuit topology, provides precise detail resolution and definitive sonic transparency.

PCB Layout

Special attention has been lavished on the PCB layout. The unit is symmetrical in design with each channel being isolated from the other. The super clean custom designed power supply is physically segregated from the rest of the sensitive electronics.

Signal Ground

Special attention has been paid to ground planes to maintain sonic purity. All signal grounding is optimised to provide a platform for a black background and increased dynamic range.

Gain Selection

Two gain settings are available, enabling optimum performance and listening levels to be achieved from both high and low impedance headphones.

High Power Output

The output stage is capable of delivering $1.0W_{RMS}$ per channel into a 64Ω load and is stable down to 4Ω , enabling the SXH2 to effortlessly drive a vast array of headphones with the control and authority that people have come to expect from Perreaux products.

Dual Outputs

Two stereo headphone jacks give the option of connecting two sets of headphones, allowing another party to be enveloped by the detailed and dynamic musicality of the SXH2.

Note:

Please ensure that the resulting impedance of the two headphone sets is not below 8Ω . Use the following equation to calculate the total impedance: $R_T = (R_1 * R_2) / (R_1 + R_2)$.

Note:	<p>Please switch the unit off and remove the cord set from the rear of the Headphone Amplifier before attempting to clean your SXH2 in the manner described below.</p> <p>Never apply liquid directly to the SXH2.</p> <p>Never use abrasives.</p> <p>Never rub in a circular motion.</p>
Cover	<p>The cover features a durable high quality powder coat finish. To remove finger marks and dirt, lightly rub the surface with a soft cloth.</p> <p>If the dirt is not removed, dip your cloth in a mild solution of soap and water, squeeze excess moisture from it and then gently reapply to the surface.</p> <p>Stubborn dirt may be removed by the application of a small quantity of isopropyl alcohol, applied directly to the cleaning cloth only, and reworking the effected area.</p>
Front Panel	<p>The SXH2 front panel features a high quality electroplate finish. Over time the surface may retain finger marks and may need to be cleaned to restore it to original condition.</p> <p>Regular Cleaning</p> <p>Gently wipe the front panel with a very clean cotton cloth. Wipe across the surface and never in a circular motion.</p> <p>Removing Stubborn Marks</p> <p>Only attempt this infrequently, as too regular or vigorous application may damage the surface.</p> <p>Apply a small quantity of any car polish containing carnauba wax to a very clean cotton cloth.</p>
Note:	<p>The car polish must state "Safe for Clear Coats" as the polish will therefore contain the absolute minimum amount of abrasive compound.</p> <p>Gently wipe over the front panel in lateral motion, allow to dry then gently wipe off with a very clean cotton cloth.</p>



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Warranty Information

1 Year Limited Warranty

The Perreaux SXH2 is warranted free from defects in material and workmanship under normal use for a period of 1-year (365 days) from the date of purchase.

To extend the warranty of the Perreaux SXH2 to three (3) years from date of purchase, please return a fully completed warranty registration form along with a copy of the original receipt of purchase to:

Perreaux Industries Ltd
PO Box 47413
Ponsonby
Auckland
New Zealand

For the Extended Warranty Registration Form, please refer to Chapter 9.

3 Year Extended Warranty

The extended warranty for the Perreaux SXH2 is three (3) years from the date of purchase. If during the warranty period the SXH2 exhibits defects in materials and/or workmanship, it will be repaired or replaced, at our option, without charge for either parts or labour, at our factory in Auckland, New Zealand. The warranty does not apply to any unit that has been misused, abused or altered.

Any unit that is not performing satisfactorily may be returned to the factory in Auckland, New Zealand for evaluation. Return authorisation must first be obtained by either calling or writing to Perreaux prior to shipping the unit. Perreaux Industries Ltd and it's authorised distributors and dealers shall not be held liable for any freight or insurance charges. Freight and insurance charges to and from the Perreaux factory will be the sole responsibility of the owner of the unit.

There is no other express warranty on the SXH2. Neither this warranty nor any other warranty, express or implied, including any implied warranties of merchantability of fitness, shall extend beyond the warranty period. No responsibility is assumed for any incidental or consequential damages.

Obtaining Service

In the event that you are experiencing difficulty with your SXH2, please as a first step consult the troubleshooting guide in Chapter 10. For further assistance, please contact your Perreaux dealer.



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Extended Warranty Registration Form

Please complete this form and either fax, mail or e-mail it, along with a copy of the original receipt, to Perreux Industries Ltd.

Fax: +64 9 815 5981

Mail: Perreux Industries Ltd
PO Box 47 413
Ponsonby
Auckland
New Zealand

E-mail: info@perreux.com

Alternatively, complete the online Warranty Registration Form on our website – www.perreux.com.



3 Year Extended Warranty Form



Name:

Address:

Suburb:

City:

Country:

Telephone:

E-mail:

Website:

Product:

Serial No:

Dealer:

Purchase Date:

**There is no
output from
my system**

Please use this guide if you are experiencing any problems with the SXH2 in your system. It will provide possible solutions for some given symptoms.

SXH2 not turned on

Make sure the SXH2 power switch is in the DOWN position.

AC cord not plugged in

Check that the AC cord is plugged into the IEC socket on the rear of the SXH2.

Mains power not turned on

Check if the power is turn on at the mains socket on the wall.

Interconnect cables not connected

Make sure that the input and output interconnect cables are plugged in and are connected to the respective RCA sockets on the rear of the SXH2.

Source not turned on

Check that your source component is plugged in to the mains and the power is turned on.

Source not set to play

Ensure that your source component is playing the recording you would like to listen to, and that pause is not pressed.

No volume setting

Make sure that the volume on your SXH2 is set to a suitable level.

SXH2 set to incorrect input

Confirm that the input on your SXH2 is connected to the appropriate source output.

Headphones not connected

Check that your headphones are firmly inserted into the jacks on the front of the SXH2.



I can hear a hum coming through my headphones

Input and/or output sockets corroded

Check that the input and output RCA sockets on the rear of the SXH2 are free from corrosion.

Interconnect cables damaged

Make sure that the integrity of your interconnect cables is sound and they are firmly connected to your source and the SXH2.

SXH2 is close to external interference

Check the proximity of your SXH2 to any possible source of EMI and/or RF interference, for example computers, televisions, amplifiers, speakers, etc. Ideally the SXH2 should be placed as close as possible to your source.

Earth loop in system

If your preamplifier and/or amplifier have an earth/ground lift switch, toggle it and check which setting sounds better. The signal ground of the SXH2 is isolated from earth by default, this means that there needs to be a connection to earth elsewhere in your system to alleviate hum.

The volume control is at maximum and output level too low

Gain setting too low

Toggle the gain configuration switch at the rear of the SXH2 UP to the HIGH gain position. Make sure you turn down the volume before changing this setting.

The volume control is too sensitive

Gain setting too high

Toggle the gain configuration switch at the rear of the SXH2 DOWN to the LOW gain position.



Specifications in Brief

The correlation between published specifications and sonic quality can be unreliable. A list of numbers reveals virtually nothing. All technical measurements must be subject to qualitative as well as quantitative interpretation. Measurements of the SXH2 reveal excellent results by any standards. Tested at 115V and 230V after a 10 minute warm up period.

Rated Power Output (<i>per channel</i>).....	2.0W _{RMS} into 32Ω
.....	1.0W _{RMS} into 64Ω
.....	215mW _{RMS} into 300Ω
Voltage Swing.....	31.5V _{p-p}
Input Sensitivity.....	1.45V _{RMS}
Maximum Gain.....	15.0dB
Gain Adjustment:	
Low Setting.....	-10dB
High Setting.....	0dB
Input Impedance.....	50kΩ
Total Harmonic Distortion (<i>THD+N</i>):	
Typically.....	0.001%, @ 1kHz into 64Ω
20Hz to 20kHz.....	<0.005%
Frequency Response.....	5Hz–60kHz, +0dB -0.25dB
Signal to Noise Ratio:	
Rated Output (<i>unweighted</i>).....	105dB
Dynamic Headroom (<i>rated with music</i>).....	>3.0dB
Power Consumption:	
Idle.....	500mW
Maximum (<i>at 3.5W per channel into 8Ω</i>).....	8.0W

Audio Connections

Inputs.....	1 pair line level (<i>RCA</i>)
Outputs.....	1 pair line level (<i>RCA</i>)
.....	2 stereo headphone jacks (<i>6.35mm, 1/4"</i>)

Other Connections

IEC AC mains input receptacle

Mains Input Voltage

115V or 230V AC at 50Hz/60Hz
(Set within the SXH2 at time of manufacture)



Specifications Explained

Internal Mains Fuse Rating

1 x 2SB 500mA slow blow
(NOT user serviceable)

Overall Dimensions

Width.....216mm (8.5")
Depth.....181mm (7.1")
Height.....58mm (2.3")

Weight

Gross2.0kg (4.4lb)
Net..... 1.4kg (3.1lb)

Rated Power Output (*per channel*)..... 1.0W_{RMS} into 64Ω

This is the optimum operating level of the unit, offering the best performance whilst allowing a large enough buffer to accommodate the unpredictable nature of music. It is the reference output level to which other specifications, such as sensitivity and gain, are referred. The Rated Output does not indicate the full capability of the SXH2.

Voltage Swing 31.5V_{p-p}

Loud transients call for a sudden burst of power from the amplifier to drive the headphones. This force is voltage. Peak-to-peak voltage is a more useful specification than Watts when it comes to delivering power to a speaker.

Input Sensitivity 1.45V_{RMS}

The Input Sensitivity figure indicates the input voltage required to achieve "rated" output (1.0W_{RMS} into 64Ω).

Maximum Gain 15.0dB

The amount of amplification the amplifier is asserting on the input signal. Gain can be calculated by dividing the rated output by the input sensitivity.

Input Impedance..... 50kΩ

The resistance "load" that is presented to the source component that is driving the SXH2.



THD+N 0.001%, @ 1kHz into 64Ω

Total Harmonic Distortion + Noise is the percentage of output signal which is made up of frequencies added due to harmonics of the fundamental frequency and noise. By using low-noise input circuitry and Class A signal stages, Perreux engineers have kept this figure to a minimum.

Frequency Response.....5Hz to 60kHz, +0dB -0.25dB

Describes the frequency range where the amplitude or strength of the output signal deviates by no more than 0.25dB.

Signal to Noise Ratio (*unweighted*)..... 105dB

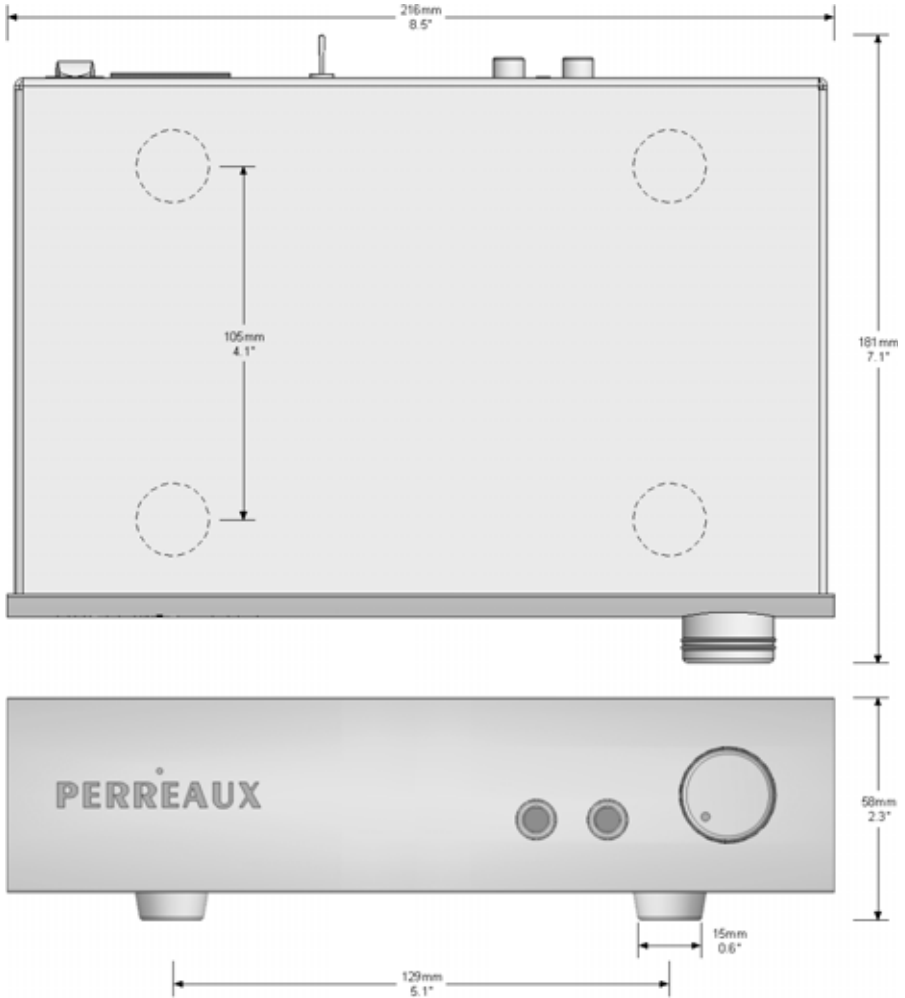
The ratio of desired signal to noise signals in the output. Headphone reproduction is susceptible to noise because of the nature of the environment to reveal every detail. This is why Perreux engineers have designed the SXH2 to maintain a low noise floor.

Dynamic Headroom >3.0dB

This indicates the SXH2 can provide more than enough extra power to cope with the sharpest musical transients. Without adequate headroom, an amplifier can become unstable under clipping conditions. Perreux amplifiers are intrinsically stable under all dynamic conditions.

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Physical Dimensions





For more information please contact your Perreaux dealer, or contact:

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Ponsonby
Auckland
New Zealand

Ph: +64 9 815 5452

Fax: +64 9 815 5981

E-mail: info@perreaux.com

Internet: www.perreaux.com

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