

Silhouette SxD2

USB DAC



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.

SXD2 USB DAC

The Perreaux Silhouette series SXD2 is a sophisticated stand-alone Digital to Analog Converter (DAC) module with Universal Serial Bus (USB) functionality. Designed to offer up-sampling to 192kHz with 24-bit resolution, the SXD2 is an effective way to improve the performance of your CD player. The SXD2 accepts a coaxial SPDIF digital output directly from the transport of the CD player (digital out). Alternately, Hard Disc Drive (HDD), computer based, stored music files can be played-back using the SXD2 via the USB connection.

The heart of the SXD2 comprises of a high-resolution 24-bit Texas Instruments DAC and features other devices capable of automatically up-sampling a 48kHz/16-bit digital signal to a maximum of 192kHz/24-bit.

CD players with an onboard DAC of inferior quality can be enhanced by the increased resolution and automatic up-sampling functionality of the Perreaux SXD2. In addition, the SXD2 features Plug & Play USB technology providing a convenient method of accessing your HDD stored music files.

The Perreaux SXD2 appeals to a new generation of music lovers, namely those that appreciate the increased resolution that the unit can provide to their existing CD player based system and additionally enabling access to the convenience of HDD computer based music storage systems. With the SXD2 you can now enjoy the best of both worlds.



Key Features

- USB connectivity
- Up-sampling to 176.4kHz/192kHz
- 24-bit output resolution
- Compatible with high resolution digital audio formats (SACD and DVD-A)
- Internal power supply featuring a custom designed, fully shielded toroidal transformer
- Multiple regulated supplies, including separate analog and digital supplies
- Optimal internal layout for increased channel separation and isolation of digital stages from the analog stage
- Enhanced audio design featuring highest quality PCB and minimal internal wiring
- Balanced current to voltage conversion in analog output stage
- Low output impedance
- Compact
- Stylish

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

From all of us at Perreux Industries Limited, thank you for choosing the Perreux Silhouette Series SXD2 USB DAC.



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Important Safety Instructions

Note: Please read all instructions carefully before attempting to operate your Perreaux "Silhouette" SXD2 USB DAC.

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 SXD2 with the cover removed.

NEVER use any liquid inside the SXD2.

NEVER bypass any fuse.

NEVER attempt to repair the SXD2. In the event of a problem, please contact your Perreaux dealer.

NEVER expose the SXD2 to extremely high or low temperatures.



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1 Unpacking and Placement

Unpacking Procedure

The SXD2 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 SXD2 USB DAC is now unpacked and ready for further installation.

Note: Please retain all packaging material for future transport.

Box Contents

- 1 x SXD2 USB DAC
- 1 x Product manual
- 3 x Performance analysis charts
- 1 x USB cable
- 1 x BNC to RCA adaptor
- 1 x Detachable AC power cord

Placing Your SXD2

The SXD2 should generally be placed close to your source or input equipment, thus keeping interconnect cabling between the SXD2 and input component as short as practical. This will reduce the inputs susceptibility to radio frequency interference and the negative effects associated with long cables.

Ventilation Requirements

The SXD2 is a digital device incorporating a low power amplifier. Ventilation requirements are not considered an important factor in product placement.

In the event that the SXD2 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 SXD2. 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 SXD2 manual thoroughly as it incorporates many features, which will enhance its operation.

Placement

The SXD2 is a sensitive digital device with a 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, etc.

Place the SXD2 close or near the source or input 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 SXD2 into the system. It is OK to leave your computer running, although make sure your application software is not open.

Switch on SXD2

Insert the power cord supplied into the rear of the SXD2 and into the wall. Switch on the socket at the wall and turn on the power of the SXD2 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.

Select USB input on SXD2

Set the toggle switch at the rear of the SXD2 to select the USB input. Refer to Chapter 4 for Rear Panel information.

Connect computer to SXD2 via USB

Connect the USB output from your computer to the USB input at the rear of the SXD2 (the computer will automatically detect and install the necessary drivers). Refer to Chapter 4 for Rear Panel information.

Connect SXD2 output to preamplifier

Connect the outputs of the SXD2 to the unbalanced input of your preamplifier, integrated amplifier or powered speakers. Refer to Chapter 4 for Rear Panel information.

Play your favourite playlist

Open your preferred application software (eg. iTunes, WinAmp, Windows Media Player, etc.) and play your favourite playlist.

Switch on preamplifier

Turn on your preamplifier and power amplifier or integrated amplifier. Slowly increase the 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.

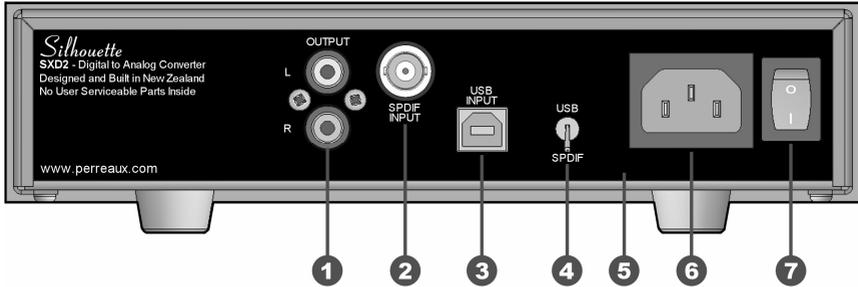
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Front Panel Functions



1 Power LED

This blue LED indicates the power status of your SXD2 USB DAC.



1 Analog Outputs

These single-ended (*RCA*) outputs provide line-level analog audio, via suitable *RCA* interconnect cables, to a preamplifier or integrated amplifier.

For more information on output specifications, please refer to Chapter 11.

2 Digital Input

The single-ended (*BNC*) input accepts a Sony/Philips Digital Interface Standard (*SPDIF*) digital audio signal from a source component (e.g. Perreaux *SXCD* CD player, Apple AirPort Express, Sony PlayStation).

The *SPDIF* standard dictates 75Ω transmission of the digital audio signal. Use a digital interconnect cable specifically designed with a characteristic impedance of 75Ω .

A *BNC* connector has been used in place of the “standard” *RCA* type, because design limitations mean *RCA* connectors can never achieve a characteristic impedance of 75Ω . Refer to Chapter 6 ‘Special Design Features’ for more information on why a *BNC* connector is used.

If you already have a suitable high-quality digital interconnect equipped with *RCA* connectors, please use the supplied adaptor to convert the *BNC* output to *RCA*.

For more information on input specifications, please refer to Chapter 11.

Note: Use a 75Ω digital interconnect cable equipped with BNC connectors to get the best possible digital performance.

Using the supplied adaptor to convert the BNC output to RCA will not degrade the signal any more than if an RCA connector was fitted by default.

3 Universal Serial Bus (USB) Input

USB input from computer, accepts a standard Type B USB connector. For more information on input specifications, please refer to Chapter 11.

4 Input Selector Switch

Selects between the coaxial digital input and USB input.

5 Serial Number/Voltage Label

The serial number is unique to your SXD2. 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 Perreux personnel or their authorised 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.

6 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.

7 On/Off Switch

When operating the switch down, power is applied to the SXD2.

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 SXD2 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”.

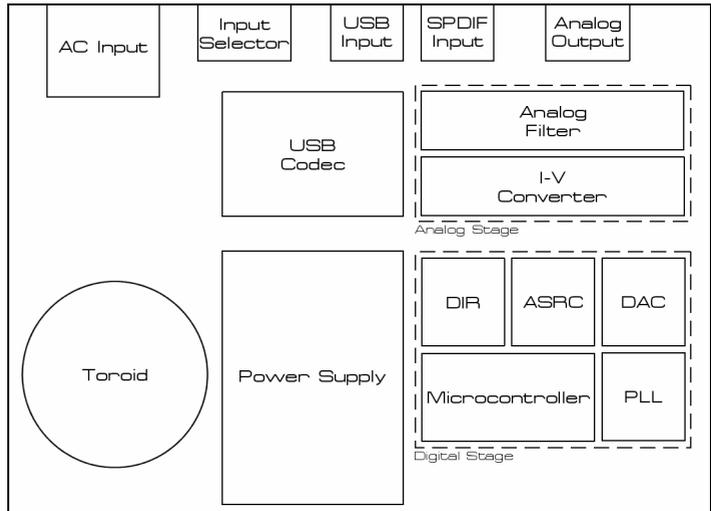
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Special Design Features

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” SXD2 is stylish yet functional and exhibits typical hallmarks of the Perreaux brand.

Circuit Topology



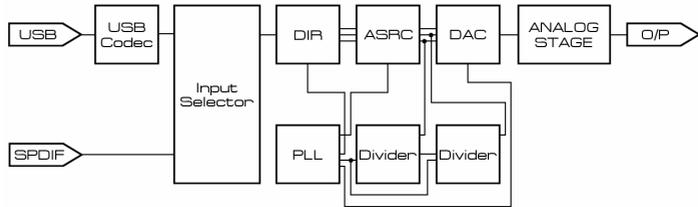
The Power Supply

The SXD2 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, transformer design, capacitance and earthing.

Separate Analog and Digital Supplies

We have specially developed a fully shielded, toroidal transformer with three separate secondary windings. Five regulated power supplies are employed, three analog and two digital. This ensures the analog circuitry has maximum isolation from any digital power supply artefacts and noise.

Block Diagram



USB Connectivity

The SXD2 is fully compliant with USB 1.1 specification and utilises ‘Full Speed’ (12Mbps) transceivers. The bandwidth offered by ‘Full Speed’ USB is more than sufficient to stream digital audio.

Plug and Play

Designed to bypass the inherently flawed soundcards internal to computers, the SXD2 offers plug and play convenience when connected via the USB port.

BNC Digital Input Connector

RCA connectors are inherently disadvantaged for use with the high frequency (1.4MHz-2.8MHz) signals associated with 44.1kHz/16-bit digital audio. Design limitations mean RCA connectors can never achieve a characteristic impedance of 75Ω, resulting in reflections and signal loss due to impedance mismatch. In contrast, BNC connectors are purposely designed to carry high frequency signals, up to 2GHz for 75Ω – therefore overcome the problems exhibited by RCA connectors.

Up-Sampling

The SXD2 automatically up-samples the digital signal 4x the input sample frequency, up to a maximum of 192kHz. For example, if the digital input is 44.1kHz (CD), the SXD2 will up-sample to 176.4kHz (4x 44.1kHz).

Rather than offer constant up-sampling to 192kHz, we have purposely decided to use a multiple of the input frequency (4x). This guarantees that every 4th sample will be true. Using 44.1kHz sample frequency as an example, if it were up-sampled to 192kHz, then only every 640th sample would be true to the original 44.1kHz signal.

24-bit Resolution

Red Book Audio CDs have a sampling rate of 44.1kHz and 16-bit resolution. This results in a maximum possible Signal-to-Noise Ratio (SNR) of around 96dB. Increasing the resolution to 24-bit not only reduces quantization error in signal amplitude, but also increases the maximum possible SNR to around 144dB.

High Resolution Formats	Accepting PCM digital streams up to 192kHz and 24-bit, via the coaxial SPDIF input, allows the SXD2 to be compatible with high-resolution formats such as DVD-A.
PCB Layout	Special attention has been paid to the PCB layout to ensure maximum isolation between the analog and digital stages. Ground planes and earth returns have been meticulously designed to provide optimal current paths, so as not to interfere with the delicate analog section. Careful layout of the analog output guarantees that crosstalk is kept to an absolute minimum.
Localised Supply Filtering	All integrated circuits (ICs), both analog and digital, have localised inductor-based supply filtering. Even though voltage regulators are used for all supply rails, they can be susceptible to picking up noise on their way to the ICs, especially with high frequency clocking and data lines present. By filtering locally, we are making absolutely certain that every last ounce of noise is removed from the supply rails. Localised filtering, along with meticulous PCB layout, paves the way for the SXD2 to utilise the higher signal-to-noise ratio (SNR) performance offered by 24-bit resolution.
Balanced I-V Conversion	Balanced current to voltage conversion is utilised in the audio output stage. This ensures that any common-mode noise and artefacts are removed before amplification and the analog filter.

Note:	<p>Please switch the unit off and remove the cord set from the rear of the USB DAC before attempting to clean your SXD2 in the manner described below.</p> <p>Never apply liquid directly to the SXD2.</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 SXD2 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 SXD2 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 SXD2 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 305
Mosgiel
Dunedin 9053
New Zealand

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

3 Year Extended Warranty

The extended warranty for the Perreaux SXD2 is three (3) years from the date of purchase. If during the warranty period the SXD2 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 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 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 its 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 SXD2. 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 SXD2, 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 3 489 2976

Mail: Perreux Industries Ltd
PO Box 305
Mosgiel
Dunedin 9053
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: / /
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There is no output from my system

Please use this guide if you are experiencing any problems with the SXD2 in your system. It will provide possible solutions for some given symptoms.

SXD2 not turned on

Make sure the SXD2 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 SXD2.

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 interconnect cables are plugged in and connected to the respective sockets at the rear of the SXD2.

USB cable not connected

Confirm that the USB cable is plugged into both the computer and the SXD2.

USB/SPDIF switch on wrong setting

Select the correct input mode (USB or SPDIF) using the toggle switch on the rear of the SXD2.

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.

Application software not properly configured

Make sure that the application software (eg. Winamp, iTunes) has been properly configured to use USB audio as its audio output device.

No volume setting

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

SXD2 connected to incorrect input

Confirm that the output of your SXD2 is connected to the appropriate source input on your preamplifier.

I can hear a hum coming from my speakers

Input and/or output sockets corroded

Check that the input and output sockets on the rear of the SXD2 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 preamplifier and the SXD2.

SXD2 is close to external interference

Check the proximity of your SXD2 to any possible source of EMI and/or RF interference, for example computers, televisions, amplifiers, speakers, etc.

Earth loop in system

If your preamplifier and/or amplifier have an earth/ground lift switch, toggle it and check which setting sounds better.

Windows 98SE keeps prompting for CD-ROM

Windows 98SE doesn't have USB audio system files

These files are not a part of the Windows 98SE core installation, they need to be added. The necessary files are on the Windows 98SE CD-ROM.

**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 SXD2 reveal excellent results by any standards. Tested at 115V and 230V after a 10 minute warm up period.

Digital Input

Number of Digital Inputs: 2 (*Coaxial, USB*)

Number of Audio Channels: 2

Sample Frequency Range

Coaxial: 32kHz–192kHz

USB: 32kHz–48kHz

Maximum Word Length

Coaxial: 24 bits

USB: 16 bits

Digital Input Impedance (*Coaxial*): 75Ω

Minimum Digital Input Level (*Coaxial*): 220mV_{p-p}

Over-Voltage Protection: Yes

DC Blocking Capacitor: Yes

Jitter Tolerance

100Hz to 5kHz: 12.75UI (*2.26us @ 44.1kHz*)

5kHz to 10kHz: 3.50UI (*620.0ns @ 44.1kHz*)

10kHz to 20kHz: 2.35UI (*416.3ns @ 44.1kHz*)

Analog Output

Analog Output Level: 1.6V_{RMS}

Output Impedance: 100Ω

Total Harmonic Distortion (THD+N)

Typically: 0.01%, @ 1kHz

20Hz to 20kHz: <0.20%

Frequency Response at F_s=44.1kHz

20Hz to 20kHz: ±0.10dB

10Hz: -0.01dB

20kHz: -0.10dB

Frequency Response at F_s=96kHz

20Hz to 20kHz: ±0.10dB

10Hz: -0.01dB

20kHz: -0.10dB

40kHz: -0.70dB



Signal to Noise Ratio
A-Weighted: 113dB
Unweighted:..... 110dB
Crosstalk
20Hz:-113dB
1kHz:-110dB
20kHz:-108dB

Audio Connections

Digital Inputs 1 Coaxial PCM (*BNC*)
..... 1 USB (*Type B*)
Analog Outputs 1 pair unbalanced (*RCA*)

Compatible Operating Systems

Windows:XP, 2000, 98SE, 98ME
Mac:OS 9.1+, OS X 10.0+

Other Connections

IEC AC mains input receptacle

Mains Input Voltage

115V or 230V AC at 50Hz/60Hz
(*Set within the SXD2 at time of manufacture*)

Internal Mains Fuse Rating

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

Overall Dimensions

Width.....216mm (8.5")
Depth.....169mm (6.7")
Height..... 58mm (2.3")

Weight

Gross2.1kg (4.6lb)
Net..... 1.5kg (3.3lb)

Digital Input Specifications Explained

Sample Frequency Range32kHz to 192kHz
This is the range of digital input sample frequencies the SXD2 is capable of detecting and processing. The Red Book compact disc standard is 44.1kHz and the high resolution DVD-A format is 192kHz.

**Analog
Output
Specifications
Explained**

Maximum Word Length	24 bits
The maximum length of the digital input data word that the SXD2 can process. The Red Book compact disc standard is 16 bits, where as high resolution DVD-A is 24 bits.	
Digital Input Impedance	75Ω
This is the industry standard termination impedance for digital connectors. This ensures an ideal match is maintained with source components.	
Minimum Digital Input Level	220mV _{p-p}
This is the minimum peak-to-peak voltage of the digital input signal required for the SXD2 to function correctly.	
Over-Voltage Protection	Yes
This protects the sensitive digital input circuitry from being damaged by input voltages which are too high.	
DC Blocking Capacitor	Yes
The DC blocking capacitor stops any prolonged DC voltage from damaging the SXD2 digital input circuitry.	
Jitter Tolerance (100Hz-5kHz)	12.75UI
This indicates the maximum possible jitter present on the digital input without affecting the performance of the SXD2. 12.75UI equals 2.26μs at a 44.1kHz sample rate.	
Analog Output Level	1.6V _{RMS}
This is the analog output voltage of the SXD2, with a 0dBFS digital input signal, and is fixed at 1.6V _{RMS} .	
Output Impedance	100Ω
This indicates the ability of the SXD2 to deliver current to the component connected to the output. Keeping this value low means the SXD2 will not be affected by resistive and capacitive loading, due to interconnects and/or the input impedance of the connected component.	
THD+N	0.01%, @ 1kHz
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.	



Frequency Response..... 20Hz to 20kHz, ± 0.1 dB

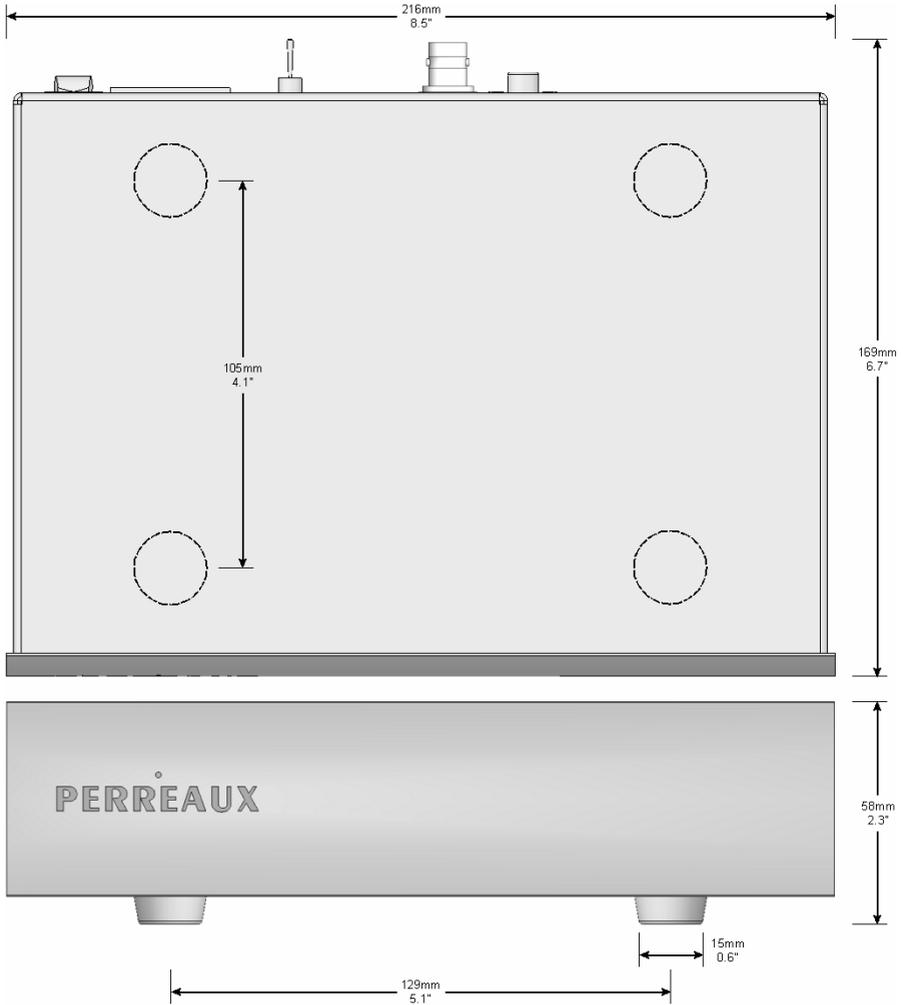
This describes how the SXD2's output level responds to frequency. Indicating that the SXD2 responds to all frequencies from 20Hz to 20kHz with no more than 0.1dB deviation in the amplitude or strength of the output signal. This also gives you an idea of the bandwidth of the SXD2.

Signal to Noise Ratio (*A-Weighted*)..... 113dB

The ratio of desired signal to noise signals present in the output. It is important in line-level components to design the circuit to keep this value at a maximum. Line-level components typically occur early in the signal chain; hence any noise introduced will be amplified. This is why Perreux engineers have designed the SXD2 to maintain a low noise floor.

Crosstalk..... -113dB

This is the level of undesired capacitive, inductive, or conductive coupling from one channel to the other. Meticulous PCB and ground plane design has ensured that crosstalk is very low.





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

Perreaux Industries Ltd
PO Box 305
Mosgiel
Dunedin 9053
New Zealand

Ph: +64 3 489 2975

Fax: +64 3 489 2976

E-mail: info@perreaux.com

Internet: www.perreaux.com

