Prisma SM6 MkII

Balanced Preamplifier

Owners Manual

PERREAUX

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i Introducing the Perreaux SM6 MkII Preamplifier

Congratulations on your Perreaux SM6 MkII purchase. To realise the full potential of your unit you need to appreciate all aspects of its operation.

Before installing the SM6 MkII into your system, read the entire manual carefully. Endeavour to understand every detail by familiarising yourself with the controls and features as you read. You will find it easier to install using the relevant sections of this manual as a reference.

We have attempted to explain every feature and operation facet clearly and concisely. Your Perreaux dealer will be happy to assist if you encounter any unforeseen problems.

Read this manual, install your unit correctly and realise the sonic significance of your investment in Perreaux.

Perreaux products are designed to provide the utmost in sonic realism and electronic reliability with a functional yet elegant appearance that reflects the care and craftsmanship applied during all stages of construction.

Features at a Glance

- Rugged build quality
- Truly balanced circuit design
- Discrete Class-A amplification throughout
- Multiple regulated power supplies
- Infrared (IR) full function remote control
- Precision volume control
- Dual preamplifier outputs
- Home theatre bypass
- Remote trigger outputs
- Advanced PCB design and earthing techniques

To maintain the consistently high quality that you expect from us, and we expect from ourselves, Perreaux products are essentially handcrafted.

We maintain the human-link throughout, from design and construction, through to the ultimate test, your music, your system, your ears.

Because we too listen to our products, we know that with your Perreaux you will discover many more of the musical secrets we strive to reveal.

From all of us at Perreaux Industries Limited, thank you for choosing the Perreaux Prisma Series SM6 MkII preamplifier.

ii Important Safety Instructions

Note: *All safety and operation instructions should be read carefully before the SM6 is operated. Keep the Owners Manual in a safe place for future reference.*

- The SM6 should not be used near water, for example near a bathtub, kitchen sink, in a wet basement, near a swimming pool, etc.
- Mounting to a wall or ceiling should be via a heavy-duty bracket or shelf designed for audio equipment use.
- The SM6 should be situated away from heat sources such as radiators, stoves, or other appliances that produce excessive amounts of heat.
- DO NOT place the SM6 directly onto carpeted surfaces.
- Avoid exposing the SM6 to extremely high or low temperatures.
- The SM6 should be connected to a mains power supply only of the type described in the operating instructions, or as marked on the rear of the unit.
- DO NOT disconnect the mains earth from the system.
- The mains power supply cord should be routed so that it is not likely to be walked on or pinched by items placed on or against it.
- The power cord of the SM6 should be unplugged from the mains outlet when the unit is to be left unused for long periods or when attempting to connect or disconnect cables and before cleaning your unit.
- Care should be taken so that objects and/or liquids do not accidentally fall inside the SM6.
- Please keep electrical equipment out of reach of children.
- Please unplug sensitive electronic equipment during electrical storms.
- Please replace any fuse with the value and type specified.
- Avoid operating the SM6 with the cover removed.
- DO NOT bypass any fuse.
- DO NOT attempt to repair the SM6. In the event of a problem, please contact your Perreaux dealer.
- DO NOT operate this product in an explosive atmosphere.

iii Table of Contents

1 Unpacking and Placement

The SM6 is packaged for maximum protection. Please carefully read the instructions below before proceeding to unpack the unit. Be extremely careful.

Unpacking Procedure

- Inspect both ends of the cardboard box and open at the end without the central staple by slitting the reinforced tape at either side.
- Fold back the flaps and tip the package on end and the inner box will slide out.
- Lay the inner box down flat and upright, open it conventionally by separating the top tray from the bottom.
- The product can now be removed from the bottom packaging. This will be easier if you have someone to help you by holding the base of the box.
- Alternately, the bottom tray and preamplifier could be tipped upside down and the bottom packaging removed. If opened in this manner, please ensure that you turn the contents over again.

Note: *Be very careful to secure the unit if you are planning to flip the package upside down.*

- Remove the two grey foam protectors off either side of the unit, leaving the black material covering.
- Pull back the material and remove the protective membrane from the front panel.

The preamplifier is now unpacked and ready for further installation.

Note: *Please retain all packaging material for future transport.*

Box Contents

1 x SM6 MkII Preamplifier	1 x Screwdriver
1 x SM6 MkII Product manual	2 x Remote trigger leads
1 x Perreaux remote control	1 x Detachable AC power cord
2 x AAA batteries	3 x Performance analysis charts

Placing Your SM6

The SM6 should generally be placed close to your amplifier, keeping the interconnect cabling short. Position all the separate components of your system close enough to your SM6 to avoid having to stretch or extend any of the interconnect cables.

As a "rule of thumb", allow 80-100mm (3-4 inches) around all sides of the product and mount the SM6 on a flat surface, ensuring that the unit has adequate access to free flowing air.

Do not place auxiliary equipment directly on top of the SM6.

Do not place the SM6 directly atop a power amplifier.

Please do not cover the product with a cloth or similar.

2 Instant Install

If you are like us, the first thing you will want to do is to play your favourite piece of music through your new SM6. 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 SM6 manual thoroughly as it incorporates many features, which will enhance its operation.*

Placement

The SM6 is a reference preamplifier and best results will be achieved when placed on a solid surface with adequate ventilation. DO NOT place on a carpeted floor or cover the preamplifier!

Turn off associated components

This minimises the potential to damage any other components when connecting your SM6 into the system.

Connect SM6 to power amplifier

Connect the balanced (XLR) or unbalanced (RCA) outputs of your SM6 to the appropriate inputs at the rear of your power amplifier.

Note: *Try to keep all interconnect cables as far from loudspeaker cables as possible and well away from all AC mains leads.*

Connect source component to SM6

Connect the relevant output of your source component to either the balanced (XLR) or unbalanced (RCA) inputs of your SM6.

Note: *Be sure to set the Balanced Input switch to the appropriate position, ON if using the balanced (XLR) inputs and OFF if using the unbalanced (RCA) inputs.*

Switch on source component

Turn on the source component and make sure you have some program material ready to play.

Switch on SM6

After checking the supply voltage compatibility with the voltage rating on the SM6 rear panel, insert the power cord-set supplied into the rear of the unit and into the wall. Switch on the socket at the wall and power up the SM6 using the switch on the rear panel.

Switch on power amplifier

Turn on your power amplifier.

Test for undesirable noises

Without any program source material, slowly increase the SM6 volume listening for any undesirable noises. After establishing that there are no problems, return the SM6 volume level back to zero.

Play your source material

Start your source material playing.

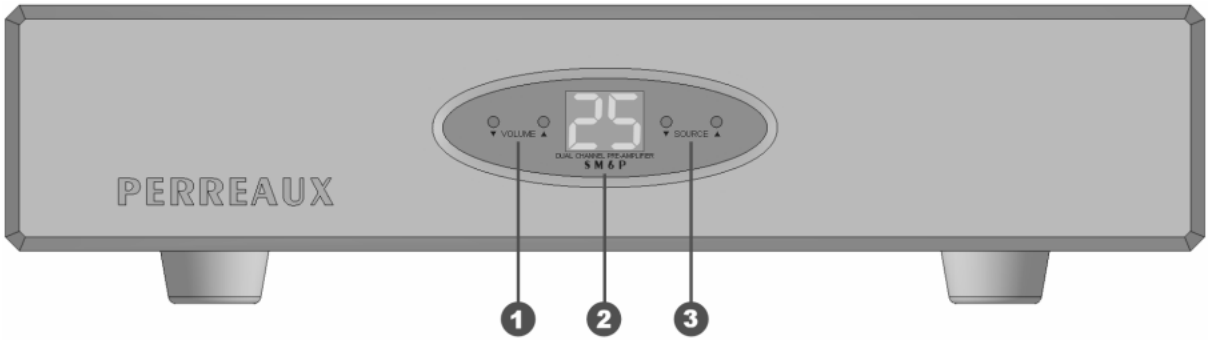
Increase the volume

Slowly increase the volume on the SM6 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 glass of wine. You'll find the whole experience much more pleasurable whilst listening to music.

3 Front Panel Functions



1 Volume Control and Standby

Volume Control

When either button is depressed, they will alter the volume setting. The volume adjustment range is 00 – 59 (-95dB to +18dB), with 47 indicating 0dB.

Standby

Pressing simultaneously will put the SM6 into standby, disconnecting all power supplies except the digital power supply for the microcontroller and turning off the remote trigger outputs. The selected input and balance settings are saved.

Standby is indicated by a single dot on the display and operation can be resumed by pressing buttons simultaneously again.

Refer to Chapter 5 “Remote Control Functions”, for further details on volume and standby controls.

2 Alphanumeric Display

The display will illuminate when the power is turned on at the mains power switch or when various remote or front panel adjustments are made. At turn-on, the display will illuminate with 00 and default to the input selected at the last standby cycle.

3 Source Select and Mute

Source Select

When either button is depressed, they scroll through the source inputs.

The order of source inputs and display indication is as follows:

Source Input	Display
Input A	IA
Input B	IB
Input C	IC
Input D (HT Loop)	HT
Input E	IE
Input F	IF

Caution! Input D (HT Loop) fixes the output to 0dB, as it is a home theatre bypass. Please ensure the level is suitably attenuated by the upstream processor or receiver before selecting this input.

Note: The source selector has six positions and supplies the chosen source to the Pre/Balanced outputs and Tape outputs. If source input E or F is selected, no signal is supplied to its applicable Tape output to avoid the potentially damaging feed back loop which can occur if inadvertently attempting to record and playback the same source simultaneously.

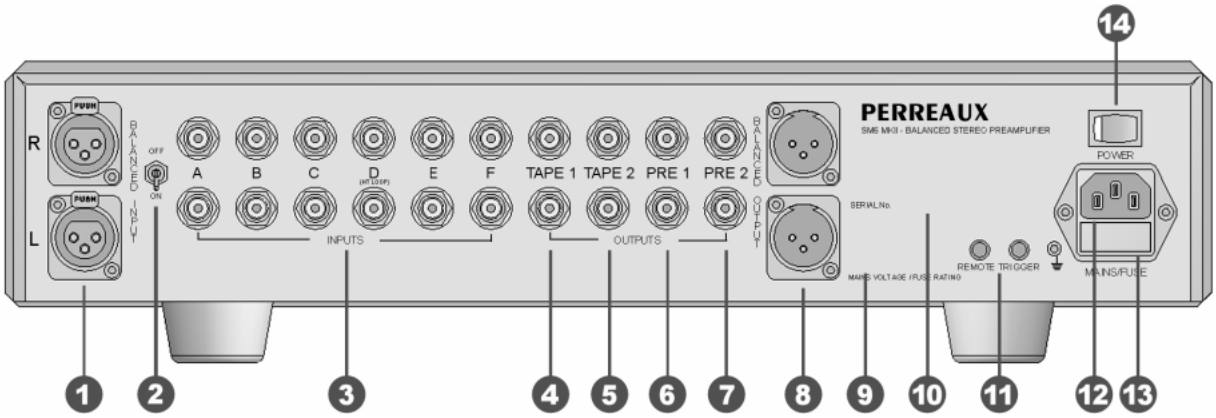
Mute

Pressing the buttons simultaneously will mute the volume, indicated by "MU" on the display. Mute can be cancelled by pressing the buttons simultaneously again, or increasing the volume setting. The volume setting can be decreased whilst the volume remains muted.

Note: The mute function still operates when source input D (home theatre bypass) is selected.

Refer to Chapter 5 "Remote Control Functions", for further details on source select and mute controls.

4 Rear Panel Functions



Caution! Observe precautions regarding volume control settings. Please make all changes at minimum volume setting. Only increase the volume after the connections have been made.

1 Balanced Inputs

Accepts a signal from a source component with balanced outputs via high quality XLR connectors. The use of good quality balanced line cable into the balanced input cause the input signal to be relatively immune to noise and external effects caused by the use of long interconnect cables, helps reduce hum loop noise and aids in the cancellation of distortion products.

The pin assignments of the balanced XLR input connectors are as follows:

Pin 1: Signal ground
Pin 2: Signal + (non-inverting)
Pin 3: Signal – (inverting)
Shield ground: Chassis ground

Note: Please refer to the operating manuals of your balanced output line level source to verify that the pin assignments of the output connectors correspond to the SM6 balanced inputs. In the event that they are not compatible, the interconnecting cable will need to be altered to suit.

2 Balanced Input Switch

This switch selects which input to use for source input A. Set to ON if using the balanced (XLR) inputs and OFF if using the unbalanced (RCA) inputs.

Note: Do not connect source equipment to both the balanced and unbalanced inputs at any one time.

Note: *The position of the Balanced Input switch has no bearing on the balanced output, it only selects which input to use for input A. Set the Balanced Input switch to ON only when using the balanced input.*

Refer to Chapter 13 "Specifications", for detail on input sensitivity and impedance.

3 Unbalanced Source Inputs

Accepts a standard single-ended input (RCA) from source components with single-ended analogue outputs. These high quality gold plated sockets are highly conductive, corrosion resistant, and provide less potential for corrosion induced distortion.

Caution! *Input D fixes the output to 0dB, as it is a home theatre bypass. Please ensure the level is suitably attenuated by the upstream processor or receiver before selecting this input.*

Refer to Chapter 13 "Specifications", for detail on input sensitivity and impedance.

4 Tape 1 Line Outputs

This single-ended (RCA) output will provide a line level audio signal, suitable for recording, from the selected source input. This output is disconnected when source input E is selected; to prevent any potentially damaging feedback loops.

5 Tape 2 Line Outputs

This single-ended (RCA) output will provide a line level audio signal, suitable for recording, from the selected source input. This output is disconnected when source input F is selected; to prevent any potentially damaging feedback loops.

6 Preamp Output 1

This single-ended (RCA) output is commonly referred to as "Preamp Out". It will provide the audio signal required to drive virtually any amplifier to full power.

7 Preamp Output 2

This single-ended (RCA) output is wired in parallel with Main Output 1 and is useful for supplying signal to another amplifier if bi-amping.

8 Balanced Outputs

This balanced (XLR) preamplifier output provides the signal required to drive virtually any power amplifier equipped with a balanced input. Connection should be made with high quality cables fitted with XLR connectors.

Note: *The position of the Balanced Input switch has no bearing on the balanced output; it only selects which input to use for source input A.*

The pin assignments of the balanced XLR output connectors are as follows:

Pin 1: Signal ground
Pin 2: Signal + (non-inverting)
Pin 3: Signal – (inverting)
Shield ground: Chassis ground

Caution! Please refer to the operating manual of your amplifier to verify that the pin assignments of the input connectors correspond to the SM6 balanced outputs. In the event that they are not compatible, the interconnecting cable will need to be altered to suit.

9 Input Voltage and Fuse Rating

Input Voltage

It is important that the SM6 be operated from the correct AC mains voltage. This unit is factory set for the voltage applicable to the original country of destination.

The SM6 will operate satisfactorily within a voltage variation of up to ±5% of that voltage at which the unit has been set.

If you require the voltage setting to be altered, e.g. relocation to another area, city or country, or extraordinarily high or low voltages, please contact your Perreaux dealer. Qualified service personnel can only perform this modification.

Caution! Never attempt to connect the unit to the incorrect voltage. Severe damage can result from applying incorrect voltage to the unit.

Fuse Rating

The fuse rating displayed here, refers to the rating of the mains inlet fuse.

For more information on fuse ratings, please refer to Chapter 13 "Specifications".

Caution! Never replace the fuse with any other ratings other than the one specified.

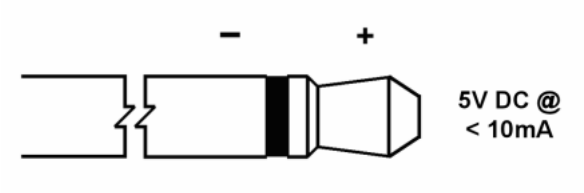
10 Serial Number

The serial number is unique to your SM6. 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.

11 Remote Trigger Outputs

Two parallel remote trigger outputs are provided to switch on or off any connected peripherals to the SM6. In the event that it is not possible to cascade connect peripherals, two outputs are provided. The remote trigger outputs are designed to accept a mono, 3.5mm diameter, male jack. The voltage rating is +5V DC when ON and 0V DC when OFF with maximum current being 10mA.

The plug must follow the specifications as per the diagram below:



12 AC Mains Input

An IEC-standard mains input is provided at the rear of the unit. The AC cord set is removable, allowing you to upgrade to a cord set of your preference.

Caution! Prior to connection to 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. Severe damage can result from applying incorrect voltage to the unit.

13 AC Mains Fuse

The SM6 is equipped with a user serviceable AC mains fuse. In the event of fuse failure, always replace with the same type and value fuse. Remember, fuses do not usually blow without a reason. Any doubts about fuse failure should be conveyed directly to your Perreaux dealer.

For more information on fuse ratings, please refer to Chapter 13 "Specifications".

Caution! This is the ONLY user accessible fuse.

Never replace the fuses with any other ratings other than the one specified on the rear panel.

Always ensure your SM6 is disconnected from the mains supply before attempting to change the mains fuse.

14 Power Switch

Depress this switch to the right (I) to turn power ON. Mute relay circuitry is employed in the SM6 and output is muted for 1 to 2 second after the power switch is actuated. Depress this switch to the left (O) to turn the SM6 off at which time the outputs will be disconnected.

Note: The SM6 resets the volume to minimum at turn-on.

5 Remote Control Functions

The SM6 comes supplied with a 36 button Perreaux Universal infrared remote control.

The remote control uses 2 x AAA batteries and may be changed by removing the black perspex insert.

Note: *Press the PRE button on the remote to select the code-set required to control the SM6.*

The SM6 uses the following functions:

Standby

Pressing this button puts the SM6 into standby, disconnecting all power supplies except the digital power supply for the microcontroller and turning off the remote trigger outputs. Standby is indicated by a single dot on the display and operation can be resumed by pressing standby again or selecting a source input.

Mute

Depressing this control causes volume to be muted. The display will indicate "MU" and the volume will remain muted until the volume level is increased, or the mute button is depressed again at which stage volume will be returned to the previous setting.

Note: *The mute control has a 'punch through' function and will operate regardless of the code-set selected i.e. you can be operating the CD player remote functions and still use the mute control without selecting the PRE button first.*

DISP Display

Pressing this button will cause the display to turn off, and is intended for use if the light of the display is distracting (for instance in a darkened room). Any operations performed will be momentarily displayed before resuming a turned off state. The display can be turned on by again pressing the display button.

Balance Left / Balance Right

The balance controls allow you to vary the level of either the Left or Right channel to obtain the correct stereo balance for your listening position. Pushing the Balance Left button will cause the level of the right channel to be attenuated (decreased in volume). Pushing the Balance Right button will cause the level of the left channel to be attenuated.

During any balance adjustment the display will indicate the direction of adjustment, left or right, with an "L" or an "R" followed by a number indicating the level of adjustment. The range is L1-L9 and R1-R9. "LR" on the display indicates the balance is centred.

Note: *Balance settings are stored when the unit is put into standby.*

(1) / CD Input A Source Select

Depressing CD selects source input A and the relevant code-set to control the compact disc player. Pressing (1) selects source input A only. Source input A is indicated by "IA" on the display of the SM6.

(2) / TUN Input B Source Select

Depressing TUN selects source input B and the relevant code-set to control the tuner. Pressing (2) selects source input B only. Source input B is indicated by "IB" on the display of the SM6.

(3) Input C Source Select

Depressing this control selects source input C. Source input C is indicated by "IC" on the display of the SM6.

(4) Input D Source Select (home theatre bypass)

Depressing this control selects source input D. This offers a preamplifier bypass for home theatre applications. Home theatre bypass mode is indicated by "HT" on the display of the SM6.

Note: *Volume and balance functions are disabled in home theatre bypass mode, although the volume can still be muted.*

(5) Input E Source Select

Depressing this control selects source input E. Source input E is indicated by "IE" on the display of the SM6.

(6) Input F Source Select

Depressing this control selects source input F. Source input F is indicated by "IF" on the display of the SM6.

+ Volume Up

Depressing this button increases the volume.

- Volume Down

Depressing this button decreases the volume.

Note: *The Volume control has a 'punch through' function and will operate regardless of the code-set selected i.e. You can be operating the CD player remote functions and still use the volume controls <u>without</u> selecting the PRE button first.*

Scroll Source Up

Pressing this button scrolls the source input up, selecting in the order:

IA → IB → IC → HT → IE → IF ⮌

Scroll Source Down

Pressing this button scrolls the source input down, selecting in the order:

IA → IF → IE → HT → IC → IB ⮌

6 Special Design Philosophies

Perreaux 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 Perreaux range comes closer to fulfilling our shared vision than at any other time in the past.

To follow is a discussion on some of Perreaux 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*".

Perreaux 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 Perreaux audio designs for more than a quarter of a century.

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 User Interface

We carefully study the user interface and par down the number of buttons and associated clutter leaving just the essential and no more. How tempting it has been over the years to loose sight of our core values as technology or trends have made it possible. That is one of the reasons why our older products still have such a high resale value today. The user interface has and always will remain simple, free from adornments, clean and uncluttered.

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. That is why our amplifier heat sinks are not hidden, but instead feature prominently in all our designs. 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".*

7 Special Design Features

Rugged Build Quality

Mechanical strength has been a hallmark of Perreaux products since the company first started production back in 1974. The concept behind the physical design and construction is that each structural member should contribute to both rigidity and performance.

Balanced Design

The SM6 is a truly balanced preamplifier, from input to output. The positive and negative halves of the signal never touch, remaining balanced throughout all stages. This circuit topology offers the ultimate in performance, providing increased noise rejection and lower levels of distortion.

Class A Output

Four discrete output stages operating in Class A provide output buffering. This enables low impedance loads to be driven, over long cable lengths using any cable.

Multiple Power Supplies

There is a separate power supply for each section of the preamplifier. One for each of the volume control chips (two chips are used to keep the system fully balanced and therefore, to maintain separation, each chip is supplied with it's own separate power supply), another one for each of the output buffering stages (once again because the SM6 utilises a fully balanced circuit topology), another for the digital logic and the final power supply looks after the input relays. The advantage of this is that there is complete isolation from stage to stage. The digital noise is kept completely out. This is further evidence of a thoroughly designed product offering.

Infrared (IR) Remote Control

Many audiophile grade components are still provided with analogue controls that are adjusted on the faceplate of the unit. The SM6 features an infrared (IR) remote control meaning you don't have to get out of your chair to make an adjustment. Some of the functions available are: standby, mute, volume up/down, display on/off, input select and balance.

Earthing

Perreaux engineers pay particular attention to designing the product to ensure maximum separation between internal signal and power earths, only meeting at a central starred point.

Precision Volume Control

The SM6 uses two digitally controlled resistor ladder volume controls. This is because we treat the positive and negative parts of the signal separately (true balanced topology). The advantages of using a digitally controlled analogue resistor ladder to adjust volume are precise control, no contacts to corrode creating wiper noise and no analogue component drift.

Dual Outputs

You do not need to purchase an RCA style splitter if you want to drive two separate power amps simultaneously, as there are dual parallel preamplifier outputs.

8 Maximising System Potential

Interconnects and Speaker Cables

An often-ignored area in high fidelity systems is the cabling connecting the various components. Interconnect leads should be high quality cable with substantial terminations. Gold plate is inherently resistant to corrosion, and an excellent conductor. The presence of corrosion induces distortion and poor conductivity will seriously interfere with sound quality. Terminations must plug snugly into sockets to maintain maximum conductivity and to avoid annoying earthing problems.

Speaker cabling is equally critical. Use only solidly constructed cable of high purity copper or silver content. Again, gold plated terminations are recommended, of the spade or banana plug type. Use cables of equal length and as short as possible to maintain uniform electrical resistance at the lowest possible level. If your amplifier is closer to one of your speakers than the other, avoid coiling the longer lead as this can create inductance, with the potential of reduced high frequency performance. Keep all connections clean, firm and tight. The traditional adage that a chain is only as strong as its weakest link most certainly applies to audio systems.

Bi-amping

Bi-amping uses two similarly powered amplifiers, with exactly the same input sensitivity so that, when the same input signal is provided to each of them, the output level will be exactly the same. This can often be done with one power amplifier connected to the tweeters and another to the woofers, as it spreads the power requirement between the two amplifiers. Bi-amping can achieve greater control, dynamics and resolution than if you try to run everything from a single stereo amplifier.

Balanced Interconnects

The use of the balanced signal inputs and outputs can have the effect of cleaning up hums, buzzes, radio frequency interference (RFI) and general extraneous rubbish that can enter an audio system. A balanced signal input system operates on the principle of differential amplification. The positive and negative inputs are contrasted against one another and the difference between them is amplified. Noise entering the system is imposed equally on the positive and negative signals and therefore will not be amplified, as no differential voltage exists.

The term used to describe the quality of the effect is called Common Mode Rejection Ratio (CMRR). CMRR is an equipment and system specification, which describes how well unwanted common mode signals are counteracted when used in conjunction with balanced connections. CMRR action prevents the egress and build up of extraneous hum; buzzes and RFI when analogue signals are conveyed down cables and between equipment powered from different locations and is widely used in professional audio applications.

The rejection ratio achieved is described in minus dB. The CMRR of a system follows the formula $20Log(V_{output}/V_{input})$. In other words a CMRR of –40dB means that all garbage entering the unit will be made 100 times smaller. The piece of equipment with poorest CMRR will effectively determine the hum and RFI level of the system. Effectively the weakest link in the chain. Highest quality audio systems should quote a CMRR figure of –80dB or better.

Positioning Ancillary Equipment

Positioning of your source equipment (tuner, video, disc, tape, record, decks) is important. To avoid airborne frequency peaks, place them well away from your loudspeakers and not in the corners of your listening area.

Loudspeaker Placement

Loudspeaker placement is a controversial issue; suffice to say that room corners are generally the worst situation. Everything which constitutes your listening area, including the materials used in its construction, will affect the sound itself and the sound stage created. Equally, you have to live with your system and therefore compromises will have to be made in line with your particular priorities. The best advice we can give concerning the choice of loudspeakers is, establish clearly in your mind your requirements; listen to many makes and models, and if at all possible audition your preferred choice in your own listening area and trust your own ears.

Matching Amplifier and Speaker Ratings

When matching speakers to amplifier wattage – ordinarily, the amplifier should have a continuous RMS output power rating the same as or higher than the speakers at the same impedance rating. For example, $100W_{RMS}$, 8Ω speakers driven by a $100W_{RMS}$ at 8Ω amplifier is not as ideal as $100W_{RMS}$, 8Ω speakers driven by a $160W_{RMS}$ at 8Ω amplifier.

Note: *100 Watts is twice as loud as 10 Watts, not ten times as loud.*

Perreaux equipment is designed with substantial headroom built in – that is, the reserve necessary to reproduce musical peaks without clipping.

Final Thoughts

High fidelity systems are an investment deserving of careful thought and personal time. Your preferences, priorities and constraints will dictate the parameters of your purchase; your ears will tell you what the right choice is for you. Our experience tells us that the bitterness of dissatisfaction lingers long after the fragrance of cheap price is forgotten, hence our use of the term – investment.

9 Care and Maintenance

The SM6 has been designed to provide many years of trouble free enjoyment. It is important to keep the exterior of the unit clean.

Note:

Please switch the unit off and remove the cord-set from the rear of the amplifier before attempting to clean your SM6 in the manner described below.

Never apply liquid directly to the SM6.

Never use abrasives.

Never rub in a circular motion.

Cover

The cover features a durable, high quality powder-coat finish. To remove finger marks and dirt, lightly rub the surface with a soft cloth.

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.

Stubborn dirt may be removed by the application of a small quantity of methylated spirits, applied directly to the cleaning cloth only and reworking the effected area.

Front Panel

The SM6 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.

Regular Cleaning

Gently wipe the front panel with a very clean cotton cloth. Wipe across the surface and never in a circular motion.

Removing Stubborn Marks

Only attempt this infrequently, as too regular or vigorous application may damage the surface.

Apply a small quantity of any car polish containing carnauba wax to a very clean cotton cloth.

Note:

The car polish must state "Safe for Clear Coats" as the polish will therefore contain the absolute minimum amount of abrasive compound.

Gently wipe over the front panel in lateral motion, allow to dry and then gently wipe off with a very clean cotton cloth.

10 Warranty Information and Obtaining Service

1 Year Limited Warranty

The Perreaux SM6 is warranted to be free from defects in material and workmanship under normal use to the original purchaser for a period of 1-year (365) days from the date of purchase from an authorised dealer or distributor.

5 Year Extended Warranty

To extend the warranty on your Perreaux SM6 to five (5) 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 11.

Warranty Transfer

Perreaux Industries Ltd may, at its discretion, allow the warranty on this product to be transferred. Please contact Perreaux on info@perreaux.com requesting a transfer.

Information on the SM6 Warranty

If during the warranty period the Perreaux SM6 exhibits defects in materials and/or workmanship, it will be repaired or replaced, at our option, without charge for either parts or labour. 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 SM6. 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 the SM6, please as a first step, follow the faultfinding procedures in Chapter 12. If after following this procedure, you require further assistance, please contact your Perreaux dealer.

11 Extended Warranty Registration Form

Please complete this form and either fax, mail or scan and e-mail it to Perreaux Industries Ltd.

Fax: +64 3 489 2976

Mail: Perreaux Industries Ltd
PO Box 305
Mosgiel
Dunedin 9053
New Zealand

E-mail: info@perreaux.com

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

5 Year Extended Warranty Form

Name:	
Address:	
Suburb:	
City:	
Country:	
Telephone:	
E-mail:	
Website:	
Product Purchased:	PRISMA SM6 MKII
Serial Number:	
Dealer:	
Purchase Date:	dd / mm / yyyy

12 Faultfinding Your System

Cause and Elimination of Hum

Hum is a particularly annoying form of noise in any high fidelity system and at some time has been experienced by many of us.

Hum may result from a number of different situations and to make matters worse maybe caused by a seemingly illogical combination of circumstances.

One or more of three specific causes creates hum in the system.

Induced Hum

Hum can be induced into the system from one or more sources and is generally associated with the radiation of noise from one system into another.

Hum and noise can be radiated from any object or system involving AC voltage and current such as power supplies in amplifiers, motors, switching equipment etc. All of these may be found in your hi-fi system or within your own home.

Hum may be induced into any part of the system, so there are no specific instructions that can be given which will offer a guaranteed cure. A good practice to adopt is to keep low-level signal equipment such as phono systems, tuners etc. well away from high-level signal equipment such as power amplifiers. Alternatively, careful designs must be employed to negate these effects on low-level signal equipment. Another good practice to adopt is to keep all signal leads away from power leads.

The practice of neatly tying excess leads together for a tidy looking installation should be resisted, as this could be the cause of induced hum in the system.

Earth Loops

Earth loops are a particularly annoying cause of hum in the system. Earth loops are created by mains frequency current flowing in the screen of signal leads and becomes apparent with the lack of adequate earthing between the various pieces of equipment making up the hi-fi system. This is further compounded by the fact that the equipment earthing considerations vary between different manufacturers and countries.

Perreaux products used with equipment manufactured by other manufacturers may cause an earth loop situation, but Perreaux products used with other Perreaux products will not cause an earth loop situation provided the following precautions are observed:

- The entire hi-fi system must be connected to the same mains/line power outlet. This will ensure that each piece of the system shares the same earth or ground. This rule applies to all installations of all brands of equipment. A preamplifier or power amplifier may be operated from an extension cord plugged into the same mains/line outlet.

- When a piece of equipment is supplied with a three pin mains/line supply lead all three pins must be connected in the correct fashion - see your dealer if in doubt.
- Check all interconnecting signal leads for good connections, both internal connections and firm contact with the sockets. While the centre pin may make firm contact, it is very important that the outer contact is also firm.
- Never remove the earth/ground wire from the mains/line supply of any piece of equipment. This could be hazardous.

Broken Earth Connections

This is a common cause of hum and noise in the system. In many instances, the only way to eliminate the possibility of hum problems arising through a broken earth connection somewhere in the system is to physically check every connection.

Identifying and Isolating Problems

When experiencing a problem, such as one channel not working, or a noise in one channel, it is good practice to adopt a method of isolating the problem to a specific item or area. This practice will assist in diagnosing, curing, or at least advising your technician of the problem and result in a saving of time, money and perhaps frustration.

A logical approach to isolating the probable cause of the problem is to start at the loudspeakers and work back to the music source, eliminating each piece of equipment in turn.

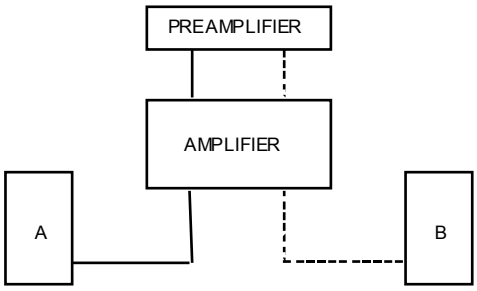
Caution!

Observe precautions regarding volume control settings. Please make all changes at minimum volume setting. Only increase the volume after the connections have been made.

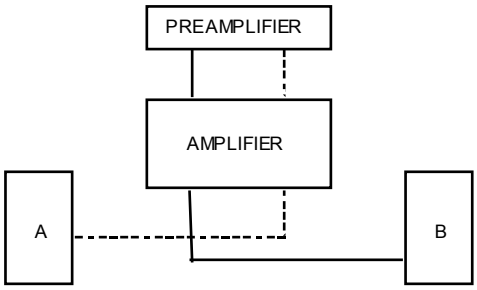
Check that the entire system is connected in the proper manner and that the mains/line supply is connected and switched on.

For clarity during this section, we have labelled one loudspeaker 'A' and the other loudspeaker 'B'. In this example, loudspeaker 'A' appears faulty.

Initial system connections



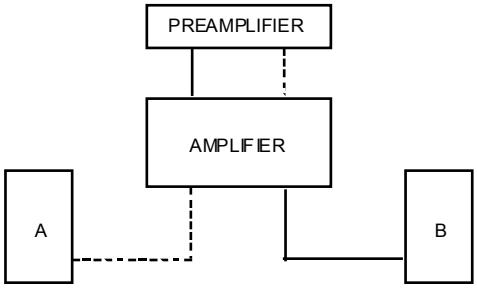
Step 1 – Loudspeakers



Change the loudspeaker leads from one loudspeaker to the other. If the fault remains in loudspeaker 'A', then loudspeaker 'A' is at fault, go no further.

If the fault now appears in loudspeaker 'B' then the problem lies further up the line. Move on to step 2.

Step 2 – Loudspeaker Leads

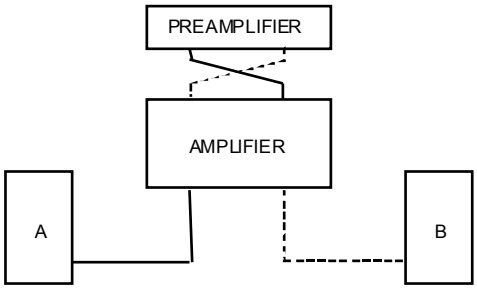


Change the loudspeaker leads completely from left channel to right and from right channel to left by now swapping them at the amplifier output. If the fault now appears in loudspeaker 'B', then that loudspeaker lead is at fault, go no further.

If the fault appears in loudspeaker 'A' then loudspeaker leads are OK. Move on to step 3.

Caution! Restore the loudspeaker leads to their original connections at both ends.

Step 3a – Inputs (Channels)

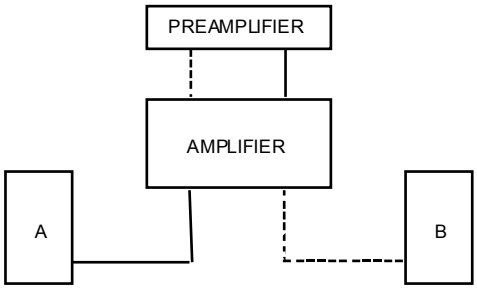


Change the input plugs on the rear of your amplifier, as follows: Change each input source in turn by swapping the plugs left to right and right to left. If the fault changes to loudspeaker 'B' on any one of the selected inputs, then that particular input source is possibly at fault. Move on to step 3b.

If the fault stays in loudspeaker 'A', then it is probable that the fault may exist within the amplifier.

Caution: *Changing of any connectors must be carried out at a minimum volume setting. Only increase the volume after the connections have been changed.*

Step 3b – Inputs (Interconnects)



Change the interconnect leads completely from left channel to right and from right channel to left by now swapping them at the source component's output. If the fault stays in loudspeaker 'B', then the interconnect lead is at fault, go no further.

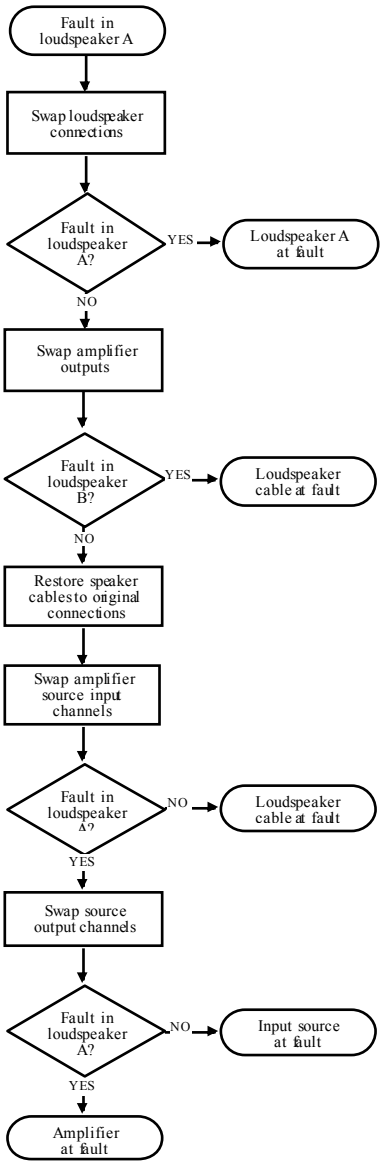
If the fault appears in loudspeaker 'A', then the interconnect lead is OK.

Caution! *Changing of any connectors must be carried out at a minimum volume setting. Only increase the volume after the connections have been changed.*

Should the fault prove to be in the amplifier it will be necessary to determine where the fault actually lies. Most of this has been done, for instance, you now know what input/s and what channel is affected. This information will assist your Perreaux dealer or service person when or if any service is required.

If the apparent fault is noise in one or both channels and has been localised to the amplifier, it will be necessary to determine whether or not the noise increases with the volume control; whether or not the noise exists when no input at all is connected to the amplifier; and what type of sound the noise is. For example, low frequency humming noise or high frequency hissing noise. This information will also assist your service person in making repairs or adjustments.

Faultfinding Flowchart



13 Specifications

The SM6 specifications are detailed in brief and then subsequently in more detail. In the detailed version, we attempt to explain the significance of each specification.

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 SM6 reveal excellent results by any standards. Tested at 115V and 230V after a 10 minute warm up period.

Specifications In Brief

Rated Output
- Unbalanced: ..... $1.5V_{RMS}$
- Balanced: ..... $1.5V_{RMS}$

Maximum Output
- Unbalanced: ..... $3.3V_{RMS}$
- Balanced: ..... $6.8V_{RMS}$

Gain Range: ..... -97dB to +18dB
Gain Resolution: 1.5dB
Total Harmonic Distortion *(THD+N)*
- Rated Output: ..... <0.004%, 20Hz – 20kHz

Frequency Response
- 20Hz – 20kHz: ..... +0dB, –0.03dB
- 10Hz – 60kHz: ..... +0dB, –0.15dB

Signal to Noise ratio *(unweighted)*
- Unbalanced: 95dB
- Balanced: 100dB

Dynamic Range: 116dB
Channel Separation
- Unbalanced: ..... 95dB @ 1kHz
  ..... 70dB @ 20kHz
- Balanced: ..... 105dB @ 1kHz
  ..... 80dB @ 20kHz

Input Impedance
- Unbalanced: 10kΩ
- Balanced: 20kΩ

Input Sensitivity
- Unbalanced: 200mV
- Balanced: 200mV

Input Overload
- Unbalanced: ..... $3.9V_{RMS}$
- Balanced: ..... $7.8V_{RMS}$

Phase Accuracy: ..... ±0.5˚, 20Hz – 20kHz
Power Consumption
- Standby: 0.5W
- Operation: 50W

Audio Connections

Audio Inputs
Unbalanced: ..... 6 pairs RCA connectors
Balanced: ..... 1 pair XLR connectors
Audio Outputs
Unbalanced: ..... 2 pairs RCA preamp level
..... 2 pairs RCA line level
Balanced: ..... 1 pair XLR preamp level

Other Connections

1 x IEC AC mains input receptacle
2 x 3.5mm mono jacks

Mains Input Voltage

100V, 110V, 120V, 220V, 230V or 240V AC at 50Hz or 60Hz
(Set within the SM6 at time of manufacture)

Dimensions

Width ..... 430mm (16.9")
Height ..... 106mm (4.2")
Depth ..... 323mm (12.7")

Fuse Ratings

Mains input fuse
100 – 125V: ..... 2SB slow blow 0.5A
200 – 250V: ..... 2SB slow blow 0.5A
(user serviceable)
Internal DC rail fuses ..... 2 x 2AG normal blow 0.5A
(NOT user serviceable)

Weight

Net: 7.7kg (17.0lb)
Gross: 10.7kg (23.6lb)

Specifications Explained

Rated Output ..... $1.5V_{RMS}$

The SM6 has been designed to drive any amplifier to it's full potential. Even with an input level from a source component with a low level output, the SM6 has enough gain to provide the amplifier with an optimum signal, utilising the full dynamic range and signal to noise specifications of the amplifier.

Maximum Output ..... $3.3V_{RMS}$

The maximum output level of the SM6 has been designed to provide substantial headroom allowing greater dynamics without clipping, handling any musical transients with finesse and ease.

Gain Range ..... -97dB to +18dB

The range in which the SM6 can alter the volume level. At the minimum setting '00' the volume level is -97dB, at the maximum setting '59' the level is +18dB. Volume setting '47' is 0dB.

Gain Resolution.....1.5dB

This is the change in gain between each successive volume setting (i.e. '46' is -1.5dB, '47' is 0dB, '48' is +1.5dB). The gain resolution is linear throughout the entire gain range.

Total Harmonic Distortion *(THD+N)*..... <0.004%, 20Hz to 20kHz

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 a truly balanced circuit topology throughout the SM6 and maintaining Class A operation at all stages, Perreaux engineers have kept this figure to a minimum.

Frequency Response .....20Hz to 20kHz, +0dB –0.03dB

This is the "standard" specification with which everyone is familiar. Actually, "frequency response" is a misnomer: technically, it should be called "amplitude response versus frequency" for it describes how uniform the amplitude or strength of signals of various frequencies is maintained. It is generally thought that a difference of 1dB is the least that can be perceived by ear, the SM6 is specified almost seven times higher, thus exceeding the audible range of the human ear.

Signal to Noise Ratio *(unweighted)*..... 100dB

The ratio of desired signal to noise signals present in the output. The balanced circuit topology of the SM6 provides the foundation for high noise rejection. This figure is referenced to the rated output of the SM6, taking into full account all potentially annoying hum components.

Dynamic Range 116dB

Dynamic Range is the difference between the loudest and quietest portions of a signal. Due to CD formats 96dB dynamic range limit, the SM6 provides more than enough dynamic range to cope with any musical transients the CD format can throw at it.

Channel Separation ..... 105dB @ 1kHz

Channel separation indicates the immunity to crosstalk. Crosstalk is caused by stray inductances and capacitances between components and lines, which results in unintentional mixing of stereo signals. Meticulous wire routing ensures excellent high-frequency separation while superior power supply design maintains low-frequency separation.

Input Impedance.....10kΩ

The resistance "load" that is presented to the component that is driving it. The high value indicates that the preamplifier will not load down the output of most high quality source components.

Input Sensitivity 200mV

Indicates the amount of input voltage required to drive the unit to its rated output. Due to the gain setup of the SM6, it is able to achieve its rated output even from the lowest of input levels.

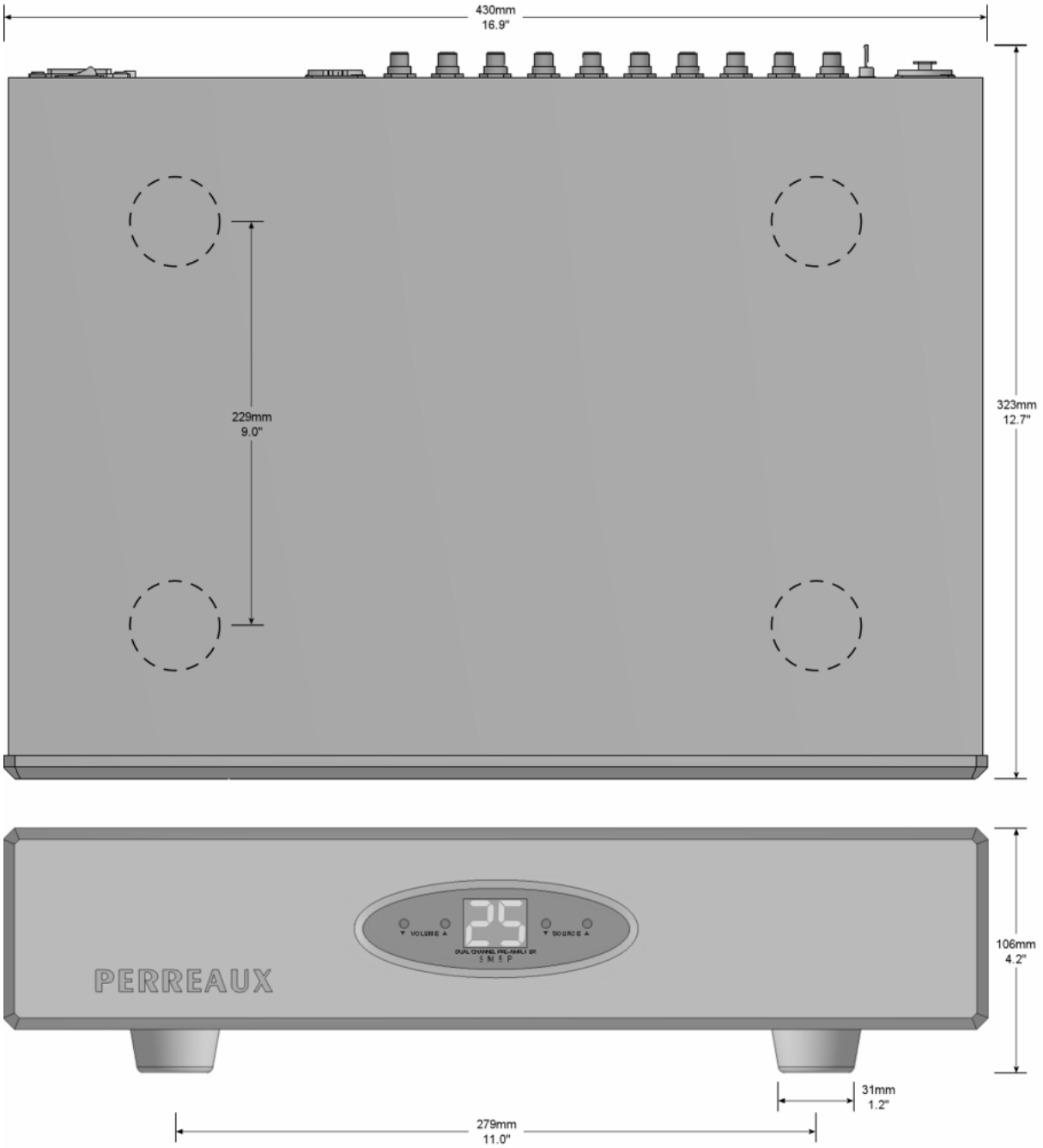
Input Overload ..... $3.9V_{RMS}$

Input Overload specifies the maximum signal level that each input circuit can handle without overloading the preamplifier circuitry and sending it into clipping.

Phase Accuracy ..... ±0.5˚, 20Hz – 20kHz

Shows the maximum amount of phase difference at any point across the frequency range 20Hz to 20kHz.

14 Physical Dimensions



15 Contact Details

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

Installation Notes