



5211

Two Channel Microphone Preamplifier with SILK

Serial Number:



Operations Manual

Important Safety Instructions

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with a dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- This apparatus shall not be exposed to dripping or splashing, and no object filled with liquids, such as vases or beer glasses, shall be placed on the apparatus.
- Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
- This apparatus has been designed with Class-I construction and must be connected to a mains socket outlet with a protective earthing connection (the third grounding prong).
- This apparatus has been equipped with a rocker-style AC mains power switch. This switch is located on the rear panel and should remain readily accessible to the user.
- The MAINS plug or an appliance coupler is used as the disconnect device, so the disconnect device shall remain readily operable.



- NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
 - Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and the receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.
- CAUTION: Changes or modifications to this device not expressly approved by Rupert Neve Designs LLC, could void the user's authority to operate the equipment under FCC rules.
- This apparatus does not exceed the Class A/Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

- ATTENTION** — Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de class A/de class B (selon le cas) prescrites dans le règlement sur le brouillage radioélectrique édicté par les ministères des communications du Canada.
- Exposure to extremely high noise levels may cause permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a period of time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the permissible noise level exposures shown in the following chart. According to OSHA, any exposure in excess of these permissible limits could result in some hearing loss. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels use hearing protectors while the equipment is in operation. Ear plugs or protectors in the ear canals or over the ears must be worn when operating the equipment in order to prevent permanent hearing loss if exposure is in excess of the limits set forth here:

⚡ **CAUTION / AVIS** ⚠
 RISK OF ELECTRIC SHOCK. DO NOT OPEN
 RISQUE DE CHOC ÉLECTRIQUE. NE PAS OUVRIR

CAUTION TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.
 ATTENTION: POUR ÉVITER LES RISQUES DE CHOC ÉLECTRIQUE, NE PAS ENLEVER LE COUVERCLE. RACHES ENTRETIEN DES PIÈCES INTÉRIEURES PAR UN USAGER. CONFIER L'ENTRETIEN AU PERSONNEL QUALIFIÉ.
 AVIS: POUR ÉVITER LES RISQUES ÉLECTRIQUES, NE DÉPOSEZ PAS CET ARTICLE À LA PLUVE OU À L'HUMIDITÉ.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of unisolated "dangerous voltage" within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.
 Le symbole éclair avec point de flèche à l'intérieur d'un triangle équilatéral est utilisé pour avertir l'utilisateur de la présence à l'intérieur du coffret de "voltagge dangereux" non isolé d'ampérage suffisante pour constituer un risque d'électrocution.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.
 Le point d'exclamation à l'intérieur d'un triangle équilatéral est employé pour avertir les utilisateurs de la présence d'instructions importantes pour le fonctionnement et l'entretien (service) dans le livret d'instruction accompagnant l'appareil.

Duration, per day in hours	Sound Level dBA, Slow Response	Typical Example
8	90	Duo in small club
6	92	
4	95	Subway Train
3	97	
2	100	Typical music via head phones
1.5	102	
1	105	Siren at 10 m distance
0.5	110	
0.25 or less	115	Loudest parts at a rock concert

WARNING — To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

Rupert Neve Designs model 5211 User Guide

Thank you for your purchase of the Rupert Neve Designs model 5211. This two channel microphone preamplifier is designed to deliver the clarity, wide bandwidth, low noise and low distortion that has become synonymous with Rupert Neve Designs.

The 5211 Two Channel Mic Preamp feature set has been expertly crafted and thoughtfully implemented to incorporate an intuitive flexibility that provides the right controls to manipulate a microphone input signal, thereby allowing the modern recording engineer to focus on the performance being captured.

In an effort to complement the 5211's overall transparency and subtlety of tone, we have also included our SILK Red transformer harmonic stage with variable Texture control. This powerful feature set enables the engineer to easily dial in a wide range of 2nd and 3rd order harmonics that are otherwise difficult to achieve.

In addition to SILK, a -6dB transformed-tapped Line Output is provided, allowing the engineer to drive the 5211 output stage harder to increase output transformer saturation without clipping the successive input stages of your studio's A/D converters. This -6dB output can be used simultaneously with the main Line Output, thus adding to the 5211's versatility.

Everyone at Rupert Neve Designs hopes that you enjoy using this tool as much as we have enjoyed designing and building it. It is our belief that the 5211 Two Channel Mic Pre will be a versatile, long-lasting addition to your studio setup.

Please take note of the safety concerns (page 2) and power requirements (below) before using this product.

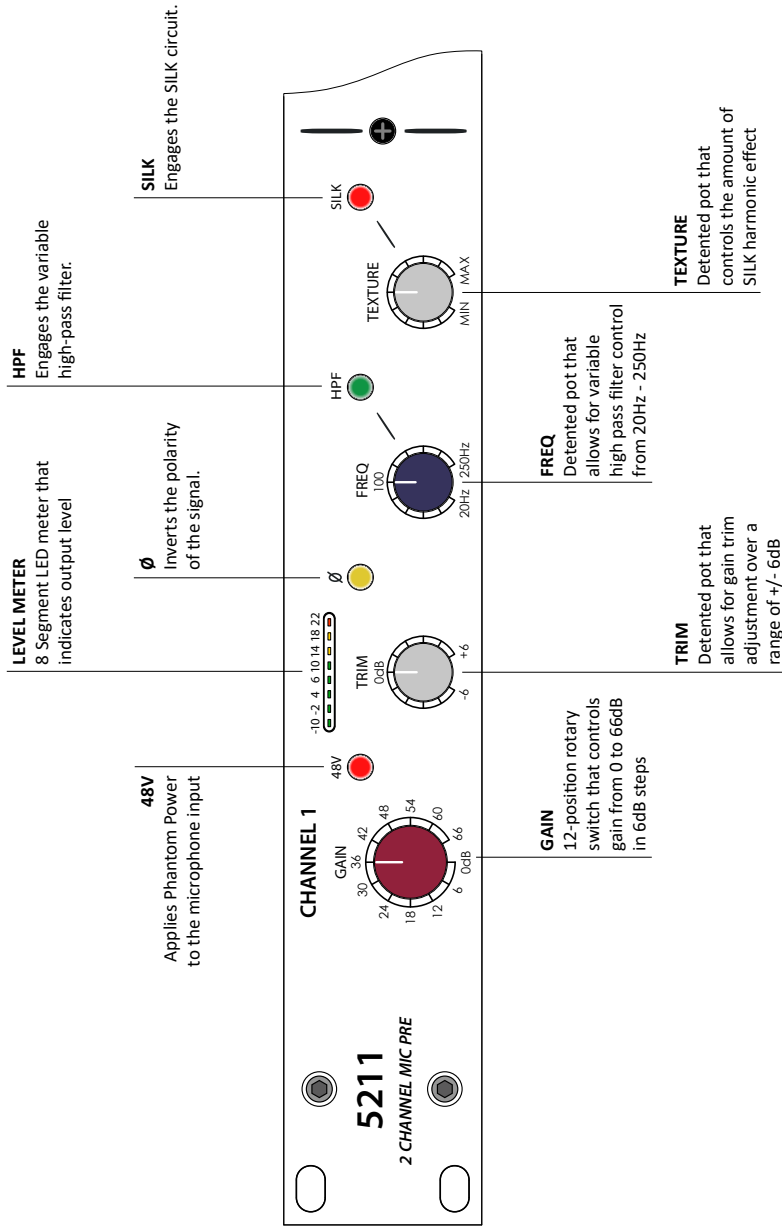


Power Requirements

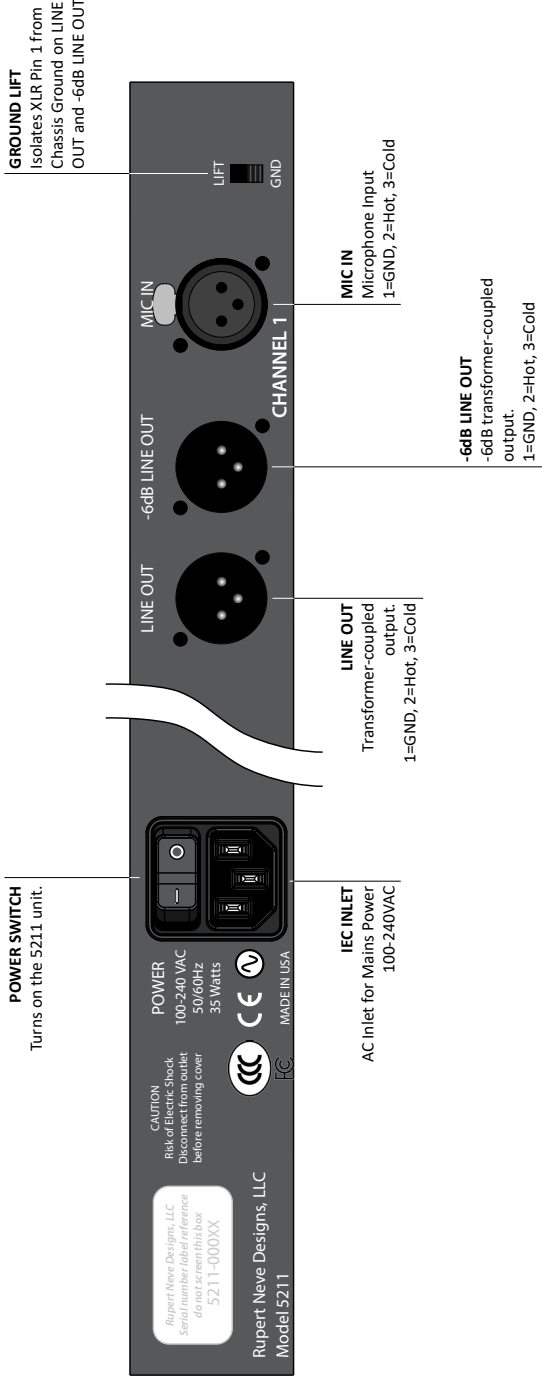
The 5211 Two Channel Mic Pre unit has a high quality, low-noise switching power supply that is further filtered and regulated for an exceptionally quiet and reliable power source for the audio circuitry. The power supply is considered "universal" in the sense that it will accept 100VAC through 240VAC at 50 or 60Hz. This unit will operate at a maximum power consumption of 35W.

There are no user-accessible fuses in the unit. If your product fails to power on, please contact Rupert Neve Designs technical support.

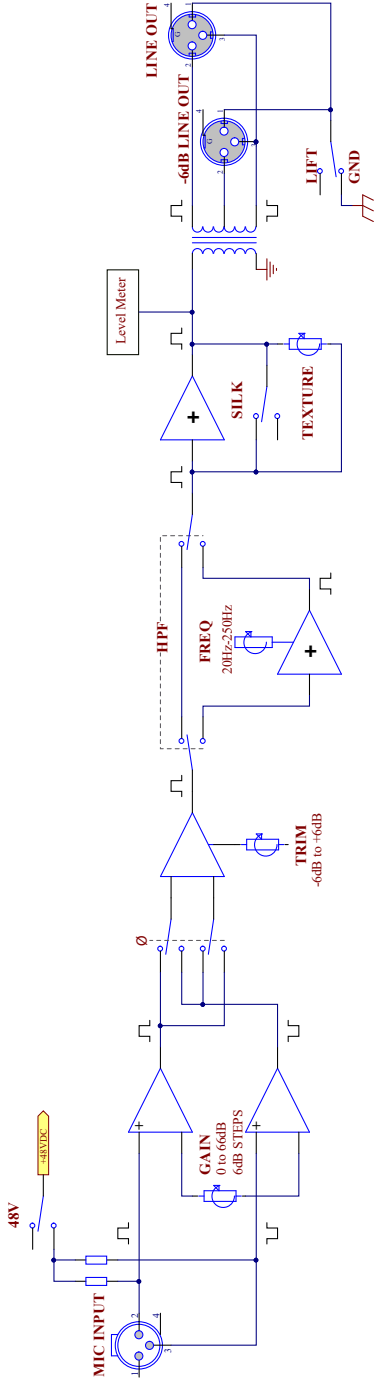
5211 Two Channel Mic Pre: Front Panel



5211 Two Channel Mic Pre: Back Panel



5211 Two Channel Microphone Preamp: Block Diagram



The Rupert Neve Designs 5211 Mic Pre Overview

The Rupert Neve Designs model 5211 Two Channel Mic Pre is a full 19" rack width, 1.75" (1U) with standard rack mounting "ears." The front panel is machined from a solid 0.20 inch aluminum plate with a steel sub panel behind it. In addition, the 5211 frame incorporates a robust steel shell that provides mechanical rigidity as well as electrical shielding from external electromagnetic fields and radio frequency interference.

The 5211 Microphone Input Stage

The 5211 Microphone Input is a well-proven, balanced topology that includes an accurate toroidal Common Mode Low Pass input filter that rejects Common Mode signals and attenuates frequencies above 150kHz.

When the microphone GAIN rotary switch is set to unity (0dB), the 5211 microphone pre-amp can handle a balanced input level of up to +26dBu without an attenuator pad. This is a unique feature that enables this microphone input to double as a line input.

The Dual Tap Transformer Output with Variable Red SILK

Transformers, by nature, create 3rd order harmonic content. This harmonic saturation increases significantly with the magnitude (level) of the AC signal that is driving the transformer. This is a major component of what defines the "sonic characteristic" of a transformer and we can take advantage of this characteristic in order to add sonic texture to our recorded signals.

For this reason, we have included two different outputs on each 5211 channel: the main Line Output and the -6dB Line Output. To be clear, other than the difference in output level, the frequency response and performance characteristics of both of these Line Outputs are near identical.

Since we now know that transformer harmonics significantly increase with signal magnitude, we can try driving the 5211's output transformer with a higher level. This can be achieved by increasing the gain on the 5211's GAIN rotary switch or TRIM pot. However, with this additional gain, we need to make sure that we don't clip the inputs of our studio's A/D converters (harsh digital clipping should be avoided).

This is where the 5211's -6dB Line Output becomes very useful: Using the 5211's -6dB Line Output, we can drive the 5211's Dual Tap Transformer harder, thereby achieving more of the transformer saturation that we desire, while avoiding harsh digital clipping from our A/D converters. We suggest that you experiment with different 5211 GAIN levels to achieve your desired transformer saturation effect.

If more transformer distortion is desired, or if you simply want a different transformer distortion characteristic, the 5211's Red SILK feature can be engaged. The SILK circuitry allows the engineer to easily dial in a range of 2nd and 3rd order harmonic content using the SILK TEXTURE pot. SILK gives the engineer the ability to capture the signature transformer sound of Rupert's vintage Class-A designs.

Controls

GAIN

Twelve position rotary switch that controls Mic Pre gain from 0 to 66dB in 6dB steps.

+48V

Pushbutton switch that applies +48VDC phantom power to the 5211 microphone input. This pushbutton illuminates RED when engaged.

Note: Please remember to mute or turn down monitors and headphone sends on the channels that the 5211 is plugged into before toggling +48V Phantom Power (be especially cautious if you use pre-fader aux sends for headphones.) Most engineers follow the basic rule of keeping +48V off until all mics are plugged in and verify that the faders and/or monitor volume controls are down before switching on +48V.

Most dynamic mics, ribbon mics and tube condenser mics DO NOT need +48V, but some newer ones do or they will not work. Most condenser mics DO require +48V Phantom Power or they will not function.

Ø POLARITY

Pushbutton switch that inverts the polarity of the signal path. This pushbutton illuminates AMBER when engaged. The symbol "Ø" (phase) is commonly used to denote polarity.

TRIM

Detented potentiometer that provides an additional +/-6dB of continuous gain trim adjustment.

HPF

Pushbutton switch that engages the Sallen-Key High Pass Filter. This pushbutton illuminates GREEN when engaged. This feature employs a 12dB/Octave Bessel Filter designed to provide linear phase response.

FREQ

Detented potentiometer that provides fully variable HPF cut-off frequency (-3dB point) adjustment from 20Hz (fully CCW) to 250Hz (fully CW). We suggest using the lowest practical HPF frequency setting since it is near impossible to recover low end after it has been removed during the recording process.

SILK

Pushbutton switch that engages the SILK circuitry. This pushbutton illuminates RED when engaged to indicate Red SILK mode. The SILK circuit is controlled by the TEXTURE pot.

TEXTURE

Detented potentiometer that controls the amount of SILK effect. SILK accentuates the transformer distortion in the mid and high frequency range. When turning the TEXTURE control clock-wise, the amount of SILK can be manipulated from effectively absent, to roughly 1.5% Total Harmonic Distortion (see Specifications page 10). This feature is designed to mimic the distortion characteristics and harmonic content in many of Rupert's vintage Class-A designs.

LEVEL METER

An eight-segment LED bar-graph meter displays the output level of the 5211 mic pre channel (pre-SILK stage).

The first five meter LEDs are GREEN and indicate the following signal levels:

-10 dBu, -2 dBu, +4 dBu, +6 dBu, and +10 dBu

The next two LEDs are AMBER and indicate the following signal levels:

+14 dBu and +18 dBu

The last LED is RED and indicates a signal level of +22dBu. The Red LED has a peak hold feature and therefore stays illuminated slightly longer than the other LEDs after being triggered. This LED is designed to illuminate 3dB BEFORE output stage clipping occurs to alert the user that the clip point is approaching.

Specifications

Mic Preamp

Gain Steps

Position	Gain (dB)
1 (Fully CCW)	0
2	6
3	12
4	18
5	24
6	30
7	36
8	42
9	48
10	54
11	60
12 (Fully CW)	66

Input Impedance 8900 Ohms

Maximum Input Level (at 1kHz) +26 dBu

Noise

Un-weighted, 22Hz-22kHz, 150 Ohm input termination

Line Out (Unity Gain) -104 dBV, -101.9 dBu

-6dB Line Out (Unity Gain) -109 dBV, -107 dBu

Line Out (+30dB Gain) -98 dBV, -96 dBu

Line Out (+66dB Gain) -66 dBV, -64 dBu

Equivalent Input Noise (EIN) -128 dBV, -126 dBu

Frequency Response -0.2 dB at 10Hz, -2.9 dB at 120kHz

Maximum Output Level

1kHz +26.5 dBu

20Hz to 30kHz +26 dBu

Total Harmonic Distortion and Noise

1kHz, +20dBu O/P level, no load 0.0015%, typical

20Hz, +20dBu O/P level, no load less than 0.02%, typical

Total Harmonic Distortion and Noise with SILK Engaged

TEXTURE fully CCW, 100Hz, +20dBu O/P level, no load 0.03%, mostly 3rd harmonic

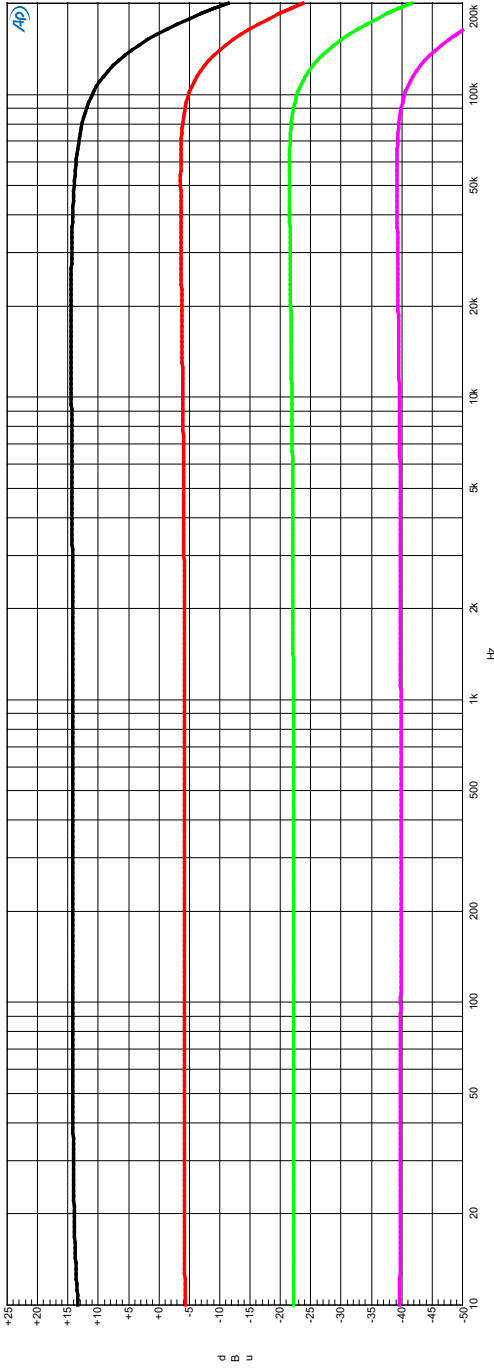
TEXTURE fully CW, 100Hz, +20dBu O/P level, no load 1.5%, mostly 2nd harmonic

Power Consumption 35 W (Max)

Shipping Weight 11 lbs. (5 kg)

Shipping Dimensions 23" (W) x 15" (D) x 7" (H)
58.4 cm (W) x 38.1 cm (D) x 17.8 cm (H)

5211 Microphone Frequency Response (150 ohm Source Z, -45dBu Input)



d
B
u

Color	Line Style	Thick	Data	Axis	Comment
Black	Solid	4	Anri.Level A	Left	+60
Red	Solid	4	Anri.Level A	Left	+42
Green	Solid	4	Anri.Level A	Left	+24
Magenta	Solid	4	Anri.Level A	Left	+6

PRODUCT WARRANTY

Rupert Neve Designs warrants this product to be free from defects in materials and workmanship for a period of one (1) year from date of purchase, and agrees to remedy any defect identified within such one year period by, at our option, repairing or replacing the product.

LIMITATIONS AND EXCLUSIONS

This warranty, and any other express or implied warranty, does not apply to any product which has been improperly installed, subjected to usage for which the product was not designed, misused or abused, damaged during shipping, damaged by any dry cell battery, or which has been altered or modified in any way. This warranty is extended to the original end user purchaser only. A purchase receipt or other satisfactory proof of date of original purchase is required before any warranty service will be performed. THIS EXPRESS, LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, TO THE EXTENT ALLOWED UNDER APPLICABLE STATE LAW. IN NO EVENT SHALL RUPERT NEVE DESIGNS BE LIABLE FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT. Some states do not allow the exclusion or limitation of consequential damages or limitations on how long an implied warranty lasts, so this exclusion may not apply to you.

WARRANTY SERVICE

If you suspect a defect in this product, please call us at 512-847-3013 or email us at service@rupertneve.com to discuss the suggested defect (it is possible that a suspected defect could be due to improper usage) and to obtain a return authorization number. It shall be your responsibility to pay for shipping the product to us, and, if the product is determined to be defective, our responsibility to pay for shipping the product back to you.



Rupert Neve Designs

PO Box 1969

Wimberley TX 78676

www.rupertneve.com

tel: +1 512-847-3013

fax: +1 512-847-8869

775-00035 Rev A