

Thank you for your purchase of the Portico™ 5033 Five-band Equalizer module. Everyone at Rupert Neve Designs hopes you enjoy using this tool as much as we have enjoyed designing and building it. Please take note of the following list of safety concerns and power requirements before the use of this or any Portico™ Series product.

## SAFETY

It's Usual to provide a list of “do's and don'ts” under this heading but mostly these amount to common sense issues. However, here are some reminders:

- The Portico™ 5033 dissipates about 9 watts, which means it will get warm in use. The heat generated is radiated through the casework and by convection through the ventilation holes on the sides. Therefore, the holes should not be covered or blocked. Portico™ modules may be stacked horizontally on a desktop or mounted vertically in a rack without heat problems. The anti-slip feet may be removed while used in a rack, but should be retained for desktop use. To avoid overheating Portico™ modules should not be stacked immediately above or adjacent to other equipment that gets hot. Also bear in mind that other equipment may radiate strong hum fields, which could spoil the performance of your Portico™ module.
- Don't operate your Portico™ module in or around water! Electronic equipment and liquids are not good friends. If any liquid is spilled such as soda, coffee, alcoholic or other drink, the sugars and acids will have a very detrimental effect. Sugar crystals act like little rectifiers and can produce noise (crackles, etc.). SWITCH OFF IMMEDIATELY! Once current starts to flow, the mixture can get very hot and harden like burnt toffee, causing permanent and costly damage. Please contact support as soon as possible at [support@rupertneve.com](mailto:support@rupertneve.com) for resolution.
- Don't operate a Portico™ in the rain! If it gets wet, and you suspect that good clean water may have gotten in, immediately unplug the unit, and remove it from the source of water. Take the cover off by removing the knobs and the two back-most screws on both sides. The cover and front panel will now slide forward and free from the unit. Gently wipe off any water that's visible with a soft cloth. Water may have percolated under the Printed Circuit Board and be hidden between it and the bottom cover. A hair drier can be used with care to blow and dry out any residual moisture. Leave the unit for a few hours to completely dry out. If the moisture was due to CLEAN water, your Portico should be up and running with no further problems.
- Don't be tempted to operate a Portico™ with the cover removed. The cover provides magnetic screening from hum and R.F. stray fields.

## POWER REQUIREMENTS

Every Portico™5033 module is fitted internally with a fully shielded and sealed DC to DC converter that provides the pristine isolated and filtered balanced DC voltages required for the discrete amplifiers. The meticulous audio quality of your Portico™ is protected by the internal converter that screens and protects the internal circuits from outside interference, allowing Portico™ modules to be fed from any external DC supply between 9 and 18 volts that is reasonably “clean.” The Portico™ DC input is protected from reverse polarity. The DC power unit normally provided with the 5033 is a high quality, robust, and very reliable switched mode supply that will work from almost any of the very wide range of mains supply voltages and frequencies that are found world-wide. Other than meeting the requirement for high quality and the regulatory specs for this class of equipment, there are no special constraints for the Portico™ power units.

When feeding multiple units, obviously they should be capable of providing enough current for the number of Portico™ modules in use.

**The great advantage of this system is that there are no common DC supply rails that could share signals with other modules and potentially cause crosstalk.**

Portico™ power units leave the factory with standard US plugs. If required, any suitable connecting cord may be substituted. Avoid using a mains power outlet that is on the same circuit as air conditioning or other equipment that regularly switches on and off. It is common sense to unplug your Portico™ power unit during a thunder storm or if it will be unused for a long period.

Portico™ modules can alternately be powered from a 12-volt battery, in which case the supplied AC power unit is not needed. When using a 12-volt battery, choose one that has enough capacity to power your Portico™ 5033 - or your complete assembly of Portico™ modules - for the expected duration of your session.

## **The Rupert Neve Designs Portico™ 5033 FIVE-BAND EQUALIZER**

### **GENERAL DESCRIPTION**

The Rupert Neve Designs 5033 module is a half rack width, 1.75" (1U) module in the now well-known Portico™ style. The 5033 is designed for both tracking and mixing applications. As with the entire Portico™ range, the construction is a heavy and robust steel shell that provides total magnetic screening and exceptional mechanical stability. The front panel is machined from a solid 1/8" aluminum plate with a steel sub panel behind it.

Alternative front panel layouts are available providing a choice of vertical or horizontal mounting. When the horizontal front panel is chosen, a single 5033 can sit firmly on a bench or desktop on its detachable rubber feet. Two 5033s can be joined with the optional RND#5221 Horizontal Joining Kit and mounted across a standard 19" rack.

When the vertical configuration is chosen, up to eight 5033s can be mounted in the optional RND #5285 vertical rack frame. This leaves a 3" wide space that can be used to house a power supply or other future modules. The vertical frame assembly is designed for standard rack mounting and includes basic rear cable management. Blank panels are available to fill any unused spaces when the full complement of eight modules is not fitted.

### **THE LINE AMPLIFIER**

The line input is 10,000 ohms bridging, floating and balanced, using a transformer of Mr. Rupert Neve's latest design. This ensures uncompromising isolation and protection against ground currents and other unwanted interference. The galvanic isolation together with the simple single-sided circuit topology and freedom from grounding problems actually enhance the sonic quality of many signal sources, particularly those of digital origins.

Unlike traditional transformers, the frequency response and distortion are independent of the source impedance of the preceding equipment. Full low frequency distortion performance is maintained even with input levels higher than +20 dBu.

Merely passing a signal through the Portico™ Line Amplifier makes a significant contribution to the purity and sonic quality of the music signal.

The Portico™ sonic “Signature” is one of extreme purity, consistent with that of Mr. Rupert Neve’s original designs, carefully nurtured over a period of 40 years.

### **MAIN OUTPUT**

The output stage utilizes single-sided circuitry, driving a carefully configured output transformer that can deliver a full +25 dBu from the balanced and ground-free secondary winding. This maximum output level provides a large margin over and above the likely maximum requirement of any destination equipment to which the Portico™ 5033 may be connected. This is especially true when feeding digital equipment!

Freedom from the interference fields that are inevitably present in any control room is virtually guaranteed by the balanced, ground-free transformer design used in the Portico™ modules.

However, any Portico™ module may be used with one side grounded if necessary, for example to us with "Hi-Fi," "consumer," or other unbalanced audio gear without significantly degrading the performance of such devices. Care must be exercised when using this type of ancillary equipment to avoid overloading it.

Bear in mind that experienced human ears are very sensitive and can perceive incredibly minute distortion or interference signals that are not part of the “desired” signal. If unbalanced connections must be used, great care must be exercised to avoid ground loops and common signal paths.

### **THE BUSS OUTPUTS**

The BUSS outputs are high impedance feeds. They are intended for use with Portico™ modules that are equipped with MIX or BUSS inputs.

The Portico™ 5033 BUSS output has dual, paralleled, TRS connectors that allow any number of Portico™ modules to be mixed to the BUSS input on any of these appropriate modules using a standard TRS patch cord.

When multiple Portico™ modules are configured in a console assembly, mixing busses will be available at many points (beyond the ones traditionally expected), providing enormous flexibility. More detailed descriptions with suggested block and system diagrams will be available shortly on the Rupert Neve Designs website at [www.rupertneve.com](http://www.rupertneve.com).

### **DESIGN FEATURES**

The subtleties of audio circuit design as relating to sonic performance are becoming more clearly understood by designers and professional users. For example, it is evident that frequencies above 20 kHz and incredibly small distortion and non-harmonic artifacts affect the way humans perceive sound. Specifications and measurements do not fully disclose all the sonic qualities that are important to sound engineers and musicians. There is no substitute for hours of patient listening and experimental bench work that result in the sweet and silky sound of classic designs

At the input and output of the 5033 lie custom designed Rupert Neve transformers, which are much of the heart of the classic sound. Even if the EQ section is completely bypassed and the unit used as a very high quality line driver, the use of such transformers can help to add sonic “sweetness”, for example, to a digital source which can, at times, be somewhat brittle.

### **LOW FREQUENCY AND HIGH FREQUENCY SHELVING FILTERS**

For opposite ends of the audio spectrum, there are two separate shelving filters, which are both engaged or disengaged using the same LED pushbutton. Each shelving filter allows for a boost or cut of up to 12 dB, providing steeply rising or falling curve shapes. When these curves are boosted or cut aggressively, they enable the second and even third harmonic to be varied in relation to their fundamental, allowing the natural sound of a musical instrument to be varied. When used less aggressively, one can attenuate bands of frequencies above or below the “turnover” point to their desired levels. These sections each provide EQ curves that approximate to 6 dB/octave. A true flat response is provided when this section is engaged but with no boost or attenuation.

The Low Frequency (LF) shelving filter is continuously variable from 30 Hz to 300 Hz, allowing for a wide range of applications, from filtering out low rumbles caused by air conditioning units to taming an instrument with too much low end or even adding a little bit of “oomph” to a thin mix, proving to be an indispensable asset in the signal chain.

The High Frequency (HF) shelving filter is continuously variable from 2.5 kHz to 25 kHz, giving this section of the EQ a valuable range of operation. Whether you want to really bring out the presence and breath of your vocals or simply add some “air” to your overall mix, the HF shelving filter will give you that bit of sparkle you’re looking for.

### **MID RANGE PARAMETRIC FILTERS**

To cover the crucial mid-range, the 5033 is provided with three bands of parametric EQ, each separately engaged and having a true “flat” response when each is engaged but not boosted or attenuated.

Each section is capable of boosting or attenuating up to 12 dB, and includes variable “Q”, covering from “Q” = 0.7 to “Q” = 5, allowing you to vary the bandwidth of attenuation or boost.

A broad range of frequencies gives a sonic section a slight boost/dip or using the filter with a very narrow range of frequencies, acting almost as an audio “chisel” to hone in on certain offending frequencies.

The Low Mid Frequency (LMF) Section is variable from 50 Hz to 400 Hz. The Mid Frequency (MF) Section is variable from 330 Hz to 2.5 kHz. The High Mid Frequency (HMF) Section is variable from 2 kHz to 16 kHz. Each section has been carefully designed to overlap neighboring ranges, allowing for a very fine range of possible adjustments.

**INPUT TRIM**

Provides continuously variable level adjustment over a range of +/-12 dB

**ALL BYPASS**

Push button inserts or bypasses the entire equalizer circuit

**LF SECTION**

Continuously variable shelving filter with a frequency range of 30 Hz to 300 Hz; continuously variable gain of +/- 12 dB

**LMF SECTION**

Continuously variable frequency range of 50 Hz to 400 Hz; continuously variable Q; continuously variable gain of +/- 12 dB; IN pushbutton engages LMF EQ section

**MF SECTION**

Continuously variable frequency range of 330 Hz to 2500 Hz; continuously variable Q; continuously variable gain of +/- 12 dB; IN pushbutton engages MF EQ section

**HMF SECTION**

Continuously variable frequency range of 2.5 kHz to 16 kHz; continuously variable Q; continuously variable gain of +/- 12dB; IN pushbutton engages HMF EQ section

**HF SECTION**

Continuously variable shelving filter with a frequency range of 2.5 kHz to 25 kHz; continuously variable gain of +/- 12dB

**LF & HF IN**

Inserts the LF and HF Sections into the circuit

**POWER REQUIREMENTS**

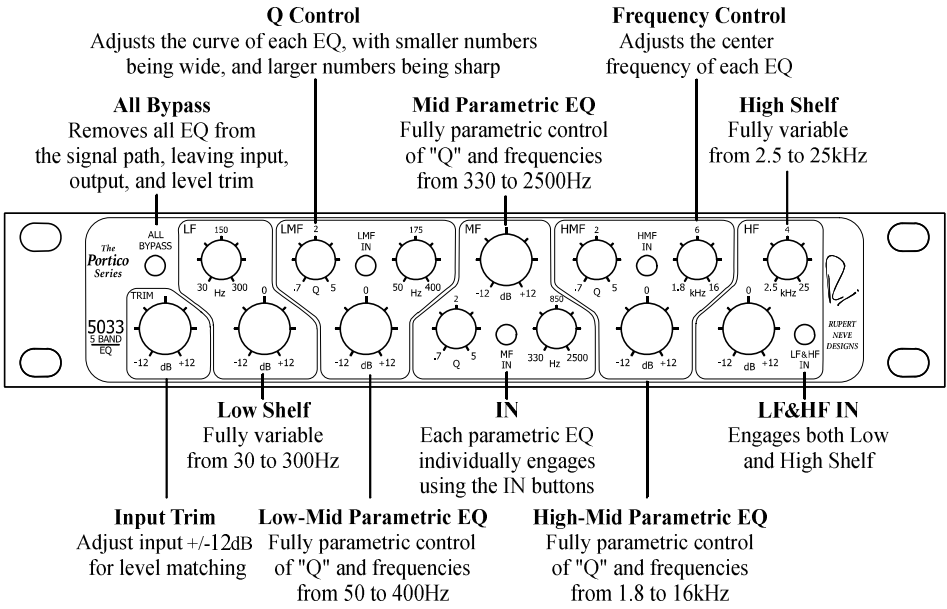
Voltage range: 9 to 18 Volts DC

Current consumption:

@ 9VDC	Current is	1.2 A typical:	Power = 10.5 watts
@ 12VDC	Current is	870 mA typical:	Power = 10.5 watts
@ 15VDC	Current is	680 mA typical:	Power = 10.5 watts
@ 18VDC	Current is	560 mA typical:	Power = 10.5 watts

FULL SPECIFICATIONS MAY BE FOUND ONLINE, AT [WWW.RUPERTNEVE.COM](http://WWW.RUPERTNEVE.COM)

## 5033 5 Band EQ - Front Panel



## 5033 5 Band EQ - Back Panel

