

Wunder Audio™

Owner's Manual

PEQ1R

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Introduction

Thank You for selecting the Wunder Audio™ PEQ1R. The PEQ1R is a fully Class-A discrete 1970's-style mic-pre/ equalizer. The design employs proprietary, custom-designed mic, line, and output transformers.

The key to the sound of the Wunder Audio modules are the transformers. They are the exact ones that were custom made for the old Zeppelin desk. They are made to the same specifications using the original winding machine. These transformers are physically large and just fit in the 1U rack mount housing!

One of the most interesting features about the PEQ1R besides the magical Mic-pre and EQ is the 1/4" instrument input jack on the front panel which feeds the line input. It is highly recommended that you use this 1/4" jack when recording bass guitar or other instruments. When plugging into this jack, you'll get more low-end than any direct box/mic preamp combination. There is a very wide range of gain in the line input incorporating 60 dB of gain. The upper end of this gain stage from -24 to -42 dB is bracketed "HiZ" on the front panel which is suitable for tracking instruments. Here you will have monster bass sounds like no direct box can achieve.

The "HiZ" range on the line input can also be used as a second, totally different mic pre on the PEQ1R using a different transformer, thus a different sound. Try it. You can actually plug a microphone into the "LINE INPUT" XLR on the back of the unit.

Interestingly, the 60 dB of line input gain is double that of a 1073 and therefore has a huge amount of headroom. When EQ-ing a source coming back into the PEQ1R from tape or hard disk to you will notice a fat, wide open sound with virtually no phase shift.

All the switches are custom made by Elma in Switzerland. The custom made potentiometers are Vishay audio-grade, made with conductive plastic for a long life (one million cycles). Large Sprague "Orange Drop" capacitors are used in the equalizer circuit. The EQ and Phase Switch are manufactured by Isostat for a vintage touch. The Panasonic FC 105°C Electrolytic capacitors are used to insure reliable high temperature operation and long life. Vintage-style, Polystyrene Foil capacitors are used throughout. Metal can, not plastic, transistors from the UK are predominantly used in the amplifier stages. The hook-up wire is from the UK and is hand assembled to "Military Spec". A single circuit board offers a vast sonic improvement over 5 separate boards found in a 1073 eliminating the use of multiple edge-board connectors and redundant wiring. The enclosures are CAD designed to 1/1000" tolerance and are powder coated and have PEM nut hardware throughout for solid construction. Finally, the custom-designed anodized aluminum knob set on the PEQ1 gives the module character. The boost and cut knobs are solid brass with shiny nickel plating. The knob markers are embedded with white plastic dowels so the white mark will never wear off.

General Notes

Installation

It is recommended that the PEQ1R modules be installed in any rack or flight case that was designed to house audio equipment.

Water and Moisture

As with any electrical equipment, Wunder Audio products should not be exposed to water or excess moisture. If any liquid enters the enclosure, it should be returned to your dealer for servicing.

Servicing

The user should not attempt to service this unit. Doing so can void the warranty. Please refer all servicing to Wunder Audio.

Connection

Your PEQ1R is powered by the Wunder Audio *Black Box* PSU. This unit provides 24V DC to power the PEQ1R's and 48V "Phantom Power" for the Phantom switch in the PEQ1R's mic preamp. When pushed to the limit, the *Black Box* will actually power up to 45 PEQ1R's. The *Black Box* will have no problem running 8, 16, or even 24 units and still have plenty of DC voltage headroom.

The *Black Box* has been factory set to the correct mains voltage for your country. To connect the PSU to the PEQ1R, use the 4-pin XLR DC power cable provided with the unit. The female end of this cable plugs into the "DC IN" 4-pin XLR on the back of the PEQ1R.

Each subsequent PEQ1R is daisy-chained using the short 4-pin XLR by connecting the "DC OUT" of the first unit to the "DC IN" on the next PEQ1R. Many PEQ1R's can be stacked together in a rack and powered up using this daisy-chain method. This type of power distribution is what is found in Classic Class-A consoles and works best.

The PSU is powered up by plugging the black 3-pronged mains cable into an AC mains outlet. When powered up, two LEDs will light up on the PSU. The top red LED represents 24V DC and the bottom yellow LED represents 48V phantom power. The front faceplate of each PEQ1R will also have a red LED, which represents that 24V DC is being supplied to the unit.

Connections:

BACK PANEL

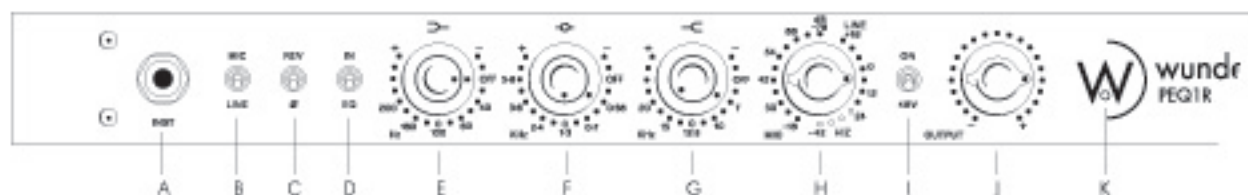
- "DC INPUT" 4-pin male XLR: receives DC power cable from PSU
- "DC OUTPUT" 4-pin female XLR: to daisy-chain power to next PEQ1R via "DC INPUT"
- "MIC INPUT" 3-pin female XLR
- "LINE INPUT" 3-pin female XLR
- "OUTPUT" 3-pin male XLR



FRONT PANEL

Front Panel Instrument Input 1/4" Tip-Ring-Sleeve jack is provided for direct input of instruments such as Guitars or Keyboards. This can also accept normal line levels, as it is normaled to the Line Input XLR on the back of the unit.

Front Panel



A 1/4" instrument or line-in jack

B Mic/Line Switch - This switch determines whether the unit is in Microphone Preamplifier or the Line Input mode.

C Phase Switch - The Output Polarity is Shifted 180 degrees by toggling this switch in the upward direction.

D EQ Switch - The Equalizer is activated by toggling this switch in the upward direction.

E High/Low control - The Low frequency is adjusted using this dual concentric knob. The outer black knob determines the frequency at which boost or cut will occur. This knob also has an off position. The inner silver knob provides continuously variable BOOST or CUT from 0 to +/- 20 dB of the selected frequency. This knob should be set to the 6 o'clock position to achieve no boost or cut.

F Mid control - The Mid frequency is adjusted using this dual concentric knob. The outer black knob determines the frequency at which boost or cut will occur. This knob also has an off position. The inner silver knob provides continuously variable BOOST or CUT from 0 to +/- 20 dB of the selected frequency. This knob should be set to the 6 o'clock position to achieve no boost or cut.

G High Frequency control - The high frequency is adjusted using this dual concentric knob. The outer black knob determines the frequency at which boost or cut will occur. This knob also has an off position. The inner silver knob provides continuously variable BOOST or CUT from 0 to +/- 20 dB of the selected frequency. This knob should be set to the 6 o'clock position to achieve no boost or cut.

H Gain Switch - This is a double-sided switch. The right side of the switch indicates the Line Input gain levels whereas the left side indicates the Microphone Input gain levels.

I Phantom Power Switch - 48V phantom power is supplied to the microphone connected to the mic pre when this switch is toggled into the upward direction.

J Output Level - This conductive plastic potentiometer acts as an output fader. As with a linear fader, unity gain is achieved when the knob is turned up to approximately 80% of its clockwise rotation.

K "Power ON" LED

Dimensions: The front panel of the PEQ1R measures 19" x 1 3/4" (IU)

Operation Notes

Powering Up

When installing a PEQ1R to or removing it from a daisy-chain, please make sure that the power going to the unit is off.

Running

It is not necessary that you leave this unit permanently switched on. If you decide to leave your equipment powered up, the modules should still run problem free.

Gain Setting

We have adopted the British convention where the gain value on the faceplate indicates the amount of gain applied to achieve the rated output of 0 dBm. Turning the gain knob clockwise will always raise the output gain even though the gain setting will indicate a greater negative number.

If a 0 dBm signal is fed into the module the gain switch needs to be set to zero to achieve a unity 0 dBm output. If a -12 dBm signal was fed into the module, then the gain switch on the module will need to be turned up to -12 to to achieve unity 0 dBm output.

The PEQ1 operates from a microphone or a line source and raises the level of the incoming signal to 0 dBm for feeding into a 600 ohm load. The level of the incoming signal can be between -78 dBm and -18 dBm for a microphone input, or between +18 dbm and -42 dbm for a line input. After performing the various signal processing requirements the signal output is 0 dBm.

The Line Input provides a very wide range of input sensitivity. There are four Hi-Z settings on the gain knob. The four highest gain settings on the line input knob (-24 through -42) are ideal for an electric musical instrument which may be plugged directly into the 1/4" instrument jack on the front of the unit.

As with any Microphone Preamp or Equalizer, it is recommended that you check your Microphone or Line input levels on a solo meter especially after a large EQ boost so the unit is at unity gain.

Specifications

Input Sensitivity

Mic -78 to -18dBm in steps of 6dB on Mic into 600 ohms

Line +18 to -42 in 6 dB steps

All Inputs & Outputs are Transformer Fully Balanced and Floating.

Output Maximum

+23dBm into 10k

Frequency Response

+0/-1dB from 20Hz and 115KHz with EQ switched out

-3 dB points at 8.5Hz and 120KHz with EQ switched out

Noise

Better than -125dB measured from 10Hz to 20KHz

Signal to Noise

Better than 82dB @ 1000Hz with input at +4dBu

Distortion

Typically <.01%. Better <.025 at full power at all Frequencies

Equalizer

HF Controls: 5 Switched frequencies 7K, 10K, 12.5K, 15K, 20K Plus OFF with continuously variable boost/cut max of +/- 20dB

Mid Controls: 6 Switched frequencies 0.36K, 0.7K, 1.3K, 2.4K, 3.6K , 5.8K Plus OFF with continuously variable boost/cut max +/- 21dB

Low Controls: 5 Switched frequencies 40Hz, 60Hz, 100Hz, 160Hz, 200Hz Plus OFF with continuously variable boost/cut max +/- 20dB

Warranty

Limited Warranty

This warranty is provided by the dealer where the Wunder Audio product was purchased, and by Wunder Audio. This warranty is valid only for the original purchaser. We warrant Wunder Audio products against defects in material or workmanship for a period of one year from from date of purchase to the original purchaser only, and agree to repair or, at our option, replace any defective item, except external power transformers, without charge for either parts or labor.

This warranty does not cover damage resulting from accident, misuse or abuse, lack of reasonable care, the affixing of any attachment not provided with the product, loss of parts, or connecting the product to any but the specified receptacles. This warranty is void unless service or repairs are performed by a authorized service center. No responsibility is assumed for any special, incidental or consequential damages. However, the limitation of any right or remedy shall not be effective where such is prohibited or restricted by law.

For service and repairs covered in this warranty

If a Wunder Audio product meets the above warranty, then the purchaser's sole remedy shall be to return the product to Wunder Audio, where the defect will be repaired without charge for parts and labor. The product will then re returned via prepaid, insured freight, method and carrier to be determined solely by Wunder Audio. All returns to the factory must be in the original packing (new packing will be available if needed), accompanied by a written description of the defect, and must be shipped to Wunder Audio via insured freight at the customer's own expense. Charges for unauthorized service and transportation costs are not reimbursable under this warranty, and all warranties, express or implied, become null and void where the product has been damaged by misuse, accident, neglect, modification, tampering or unauthorized alteration by anyone other than Wunder Audio. We will not repair transit damage under the no-charge terms of this warranty.

When sending a product in for servicing, be sure to include your sales slip as proof of purchase date, or registration card. Proper registration is made by filling out and returning to the factory the warranty card attached to this general warranty statement, along with a copy of the original sales receipt as proof of the original date of purchase. Only one card is issued with each unit, and the serial number is already recorded on it.

If the warranty registration card has already been removed then this is not a new unit, and is therefore not warranted by the factory. If you believe this to be a new unit then please contact the factory with the details of purchase.

The warrantor assumes no liability for property damage or any other incidental or consequential damage whatsoever which may result from failure of this product. Any and all warranties of merchantability and fitness implied by law are limited to the duration of the expressed warranty. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. All warranties apply only to Wunder Audio products purchased and used in the United States.

NOTE: No other warranty, written or oral is authorized for Wunder Audio products.

Warranty Registration

Please fill out the registration form below and send the bottom portion to:

Wunder Audio
Registration Department
5730 Misty Hill Cove
Austin, TX 78759

Registration entitles you to product support, full warranty benefits, and notice of product enhancements and upgrades. You must complete and return the following to validate your warranty and registration.

Model _____ Serial No. _____

Purchase Date _____ Supplier _____

Please detach the portion below and send it to Wunder Audio

Model _____ Serial No. _____

Purchase Date _____ Supplier _____

Name of Owner _____

Address _____

City, State, Zip _____

Telephone _____

Email Address _____

Name of dog or cat _____

Serial Numbers of other Wunder Audio Equipment _____
