WARNING NOTICE TO USER!

Although preventative safety measures have been designed into Radial 500 series products we strictly advise against hot-swapping modules or plugging and unplugging them when the Workhorse or other 500 series rack is powered on. Hot swapping can cause connection sparks at the card-edge connector that could send damaging transients to other equipment. This also greatly reduces the life span of the card-edge contacts. Damage due to hot swapping is not covered under warranty. There are no user serviceable parts inside.
FEATURE SET

1. HIGH BOOST - 12 position rotary switch features a wide variety of high-frequency preset curves designed to add clarity, shimmer and presence to the voice on instrument.

2. SHIFT - This two position toggle switch changes the slope and amplitude of the preset curve. The SHIFT position offers a steeper EQ slope with increased amplitude creating a more pronounced effect.

3. MID CUT - 12 position rotary switch presents an array of eleven preset curves, most of which are designed to cut mid frequencies where the human ear is most sensitive.

4. BASS BOOST - 12 position rotary switch is outfitted with eleven preset curves designed to boost bass and add warmth, body and punch to the audio track.

5. HPF - High-pass filter rolls off excessive low frequencies that can cause resonant feedback on a live stage or clutter up the bottom-end of a track when mixing.

6. GAIN - Adjustable level control allows you to compensate for the EQ amplitude boost or cut and maintain unity gain through the Q3.

7. EQ IN - This switch lets you compare the original program material with the effect introduced by the passive inductor coil EQ circuit. The LED indicator will illuminate when the EQ is engaged.

8. OMNI PORT - Unbalanced ¼" TRS input and output receives a signal from an external device, processes it through the Q3 and outputs the signal at the Omniport.
OVERVIEW

The Radial Q3 is different... it does not follow tradition. The usual 3-knob EQ approach is to select a frequency band using some sort of rotary switch, then set the Q or width of the peak frequency and then adjust the amplitude of the effect to suit. To create truly usable audio curves, you really need to combine multiple frequency bands together and mix their effects. In other words, to recreate the type of curves we have conjured up inside the Q3, you would need at least two bands and 6 control knobs. This is ‘practically’ impossible in a small format module like the 500 series as the controls would be so tightly packed, they would be unusable.

To fit a coil EQ into the 500 series format, a completely different approach was needed. The Q3 changes convention by giving the user a mind-numbing selection of over 12,000 EQ possibilities using only three knobs and a few switches. Each 12 position switch is packed with 11 preset curves that have been carefully selected after exhaustive listening tests. These were evaluated on voice, bass, acoustic guitar, electric and on drums and compared using both dynamic and condenser microphones.

We then set about testing how each curve would sound in tandem. There is no doubt that while some curves will sound amazing on bass, the same curve may not suit mandolin. But with well over 12,000 combinations, you will surely find lots of very usable sounds.

The 3-knob user interface is so natural and easy to use, that you will be amazed at how quickly you will become accustomed to it. And once you get started, you will find favourites that will surely become cornerstones of your recording process.
GETTING STARTED

Making connections
Before making any connections, start by turning off your audio system and turning all volume levels down. This helps protect equipment from turn-on transients that could damage loudspeakers and other sensitive equipment. We recommend using a power bar with a switch as this makes it easy to turn on and off the 500 series rack, monitors and so on, using a single switch. Carefully plug the Q3 into your 500 series rack avoiding stress on the card edge connector. Screw the module in to ensure it does not accidentally become dislodged.

Connections between the Q3 and the recording or PA system are made at the rear panel of your 500 series rack. Most 500 series racks are equipped with XLR connectors. When you plug the Q3 module into your 500 series rack, it will automatically route the card-slot input and output XLR jacks to the module. With the Radial Workhorse 500 series rack the I/O is augmented with ¼” TRS connectors, D-Subs and the Mix Buss signal to feed the Workhorse mixer section.

Start by setting up the controls as follows:
1. Set all HIGH, MID and BASS frequency band controls to the OFF position.
2. Make sure all three ‘SHIFT’ switches are pushed to the left (bold effect). This will help you to choose a preset curve that works best for the instrument at hand. Once selected the effect can be pulled back by toggling the SHIFT switch to the right.
3. Set the HIGH PASS FILTER to off (outward position).
4. Set the GAIN control to the 12 o’clock position.
5. Set the ON switch to bypass (EQ circuit out).

The Q3 is a line level device. In other words, it is designed to take the output from a mic preamplifier or pre-recorded track and process the signal before sending it along to a dynamic processor, effects device or back to the recorder.

It is important to note that the GAIN control is always active. In other words, when you hit the bypass switch, you are actually bypassing the coil EQ circuits. This enables you to switch the EQ in and out to compare the effect at the same gain settings.

Connect the source to the Q3, connect the output from the Q3 to your recording system... turn it on. Listen. You should hear audio. If not, check your connections. To check the power going to the Q3, depress the EQ IN switch. The LED will illuminate if power is present in your 500 series rack. Now familiarize yourself with the GAIN control to check sound levels. If all is good, return it to the 12 o’clock start position.
Using the Coil EQ
The Q3 features three 12 position rotary controls that are designated as BASS, MID and HIGH. Each of these features on OFF position and 11 preset curves. Using a simple microphone and a set of headphones, start by familiarizing yourself with the various EQ curves in each band. As some of the EQ curves are very dramatic, using headphones will help to eliminate feedback from occurring.

Note that the HIGH and BASS bands are made up of mostly boost type presets while the MID band is made up of mostly cuts. This follows the way we humans like to ‘hear’ sound. Keep in mind, the Q3 is not intended to be a surgical tool, it is designed to enthral and excite.

When using subtractive curves, you will notice that the sound level will appear to drop. This is normal. Simply adjust the level by increasing the GAIN control to compensate. Be careful! The Q3 has lots of gain!

CAUTION!

One of the drawbacks to passive coil EQs is that there is no noise preventative circuitry between the induction coil circuit and the signal path. This means that when you switch coils, you can encounter clicks and pops. Always monitor at reduced levels while setting up the Q3. This will help avoid popping which in turn could damage more sensitive equipment.

Using the ‘Shift Key’
One of the cool features on the Q3 is the SHIFT switch. When set to the right, the effect of each curve is gentler. When moved to the left, it is bolder and more prevalent. This enables you to listen to various curves to determine if the general effect is going in the right direction and then lets you either add or subtract the effect, depending on your musical taste.

Note: As the space between the 12 position rotary switches is very tight, the easiest way to move the shift switch is to use a pen or tweaker. This is the downside to jamming all of this control into a 500 series format!
Using the High-Pass Filter
The Radial Q3 is equipped with a switch labelled HPF that stands for high-pass filter. What this switch does is exactly that... it allows the high frequencies to pass... therefore cutting out some of the lows. The HPF can be very effective when recording to eliminate excessive bottom-end. Some EQ settings can cause certain instruments to sound muddy and clutter up the recording. Keep in mind that bass frequencies contain a lot more energy than highs, so they affect dynamic range and distortion. High-pass filters are also a ‘God-send’ in live touring as cutting excessive bottom end eliminates resonance which is the primary cause of feedback. Simply press, listen and then take out to compare.

Using the Omniport
When the Q3 is used with a Radial Workhorse or one of our other 500 series power racks, the Omniport connection becomes available and in this case, it functions as an unbalanced input and output.

While the XLR and ¼” TRS jacks on the Workhorse are balanced, the Omniport connection is unbalanced making it easy to connect to the unbalanced insert patch point on a console. Note that the balanced XLR I/O should be left unconnected when using the Omniport function. The easiest way to connect to the Omniport would be to use a TRS-to-TRS cable. Simply make sure the wiring is configured as follows:
Q3 PRESET EQUALIZATION CURVES

Although printing the preset curve data is somewhat superfluous, we have decided to include it in the manual so that you can get a ‘visual’ of what each individual preset curve looks like. DO NOT get caught looking at curves to make audio decisions. Use your ears! Once you get started, you will find that getting around the Q3 will be very natural and incredibly quick.

HIGH BOOST PRESETS

1. +3dB High Shelf
2. +9db @ 4.8 KHz
3. +9db @ 2KHz
4. +8db @ 3.2 KHz
5. +6db @ 4.5 KHz
6. +9db @ 7 KHz
7. +13db @ 7 KHz
8. +8db @ 10 KHz
9. +5db High Shelf with 8KHz Notch
10. +4db High Shelf
11. +7db @ 7 KHz
MID CUT PRESETS

-16db @ 400 Hz

-11 db @ 800 Hz

-15 db @ 800 Hz

-7db @ 1.2 KHz

-11db @ 1.2 KHz

-15db @ 1.2 KHz

-11db @ 1.8 KHz

-10db @ 1.5 KHz Shaped

-12db @ 3.5 KHz Shaped
BASS BOOST PRESETS

![Diagram showing BASS BOOST PRESETS with graphs for different settings and frequencies.](image)
SUGGESTED SOUND SETTINGS

**NAME:** Jazzy Bass  
**Inst:** Fender Jazz Bass  
**Pickups:** Neck PU  
**HPF:** Off

**NAME:** Marcus Funk  
**Inst:** Fender Jazz Bass  
**Pickups:** Both  
**HPF:** On

**NAME:** Smooth Fretless  
**Inst:** Fender Fretless Jazz Bass  
**Pickups:** Neck PU  
**HPF:** On

**NAME:** Bright Reggae  
**Inst:** Fender Stratocaster  
**Pickups:** Singlecoil Bridge & Middle PU  
**HPF:** Off

**NAME:** Quiet Moment  
**Inst:** Gibson Les Paul  
**Pickups:** Humbucker Neck PU  
**HPF:** On

**NAME:** Finger Pickin’  
**Inst:** Acoustic  
**Pickups:** Magnetic in Soundhole  
**HPF:** Off
SUGGESTED SOUND SETTINGS

NAME: Strumming Sunday
Inst: Acoustic Guitar
Pickups: Piezo & Magnetic
HPF: On

NAME: Call Me Elvis
Mic: Dynamic Vocal
HPF: On

NAME: Sticky Pop
Mic: Condenser Vocal
HPF: On

NAME: Fat Girl
Mic: Condenser Vocal
HPF: Off

NAME: Open Kick
Inst: Kick Drum
HPF: Off
SUGGESTED SOUND SETTINGS

NAME: Stupid Bass
Inst: Kick Drum
HPF: Off

NAME: Slap Kick
Inst: Kick Drum
HPF: Off

NAME: In Your Face
Inst: Snare Drum
HPF: On

NAME: Big Chest
Inst: Snare Drum
HPF: Off
USER SOUND SETTINGS


GAIN: 150Hz HPF: 150Hz GAIN: 150Hz
Q3 COIL EQUALIZER 500 MODULE SPECIFICATIONS*

Circuit type: Coil/Capacitor/Resistive Boost and Cut Filters
Frequency Response: 20Hz-20KHz +/- 1db in non EQ positions
Dynamic Range: >112dB
Noise: <90dBu (600 ohm source impedance - filters Off)
Noise: <87dBu (600 ohm source impedance - filters On)
Output Headroom: +27dBu
Clip Level - Input: +20dBu
Clip Level - Output: +27dBu
THD+N: <0.003% (0dbu input at 1 KHz)
Intermodulation Distortion: <0.002% (0dbu input)
Input Impedance: 12K balanced
Output Impedance: 440 Ohms balanced
Equivalent Input Noise: -100dbu
Gain: 7db (at maximum, EQ bypassed)
Omniport Function: Unbalanced Input / Output (input = tip; output = ring)
Power Requirement: 25mA
Shipping Dimensions: 171 x 51 x 229mm 0.7 kg (6.75" x 2" x 9" 1.5 lbs.)
Warranty: 3 Years, transferable

CONNECTOR WIRING

XLR Connector
GROUND \(\rightarrow\) \(\leftrightarrow\)
HOT (+) \(\rightarrow\) \(\leftrightarrow\)
COLD (-) \(\rightarrow\) \(\leftrightarrow\)

TS ¼" Phone Connector
GROUND \(\rightarrow\) \(\leftrightarrow\)
HOT (+) \(\rightarrow\) \(\leftrightarrow\)

TRS ¼" Phone Connector
GROUND \(\rightarrow\) \(\leftrightarrow\)
HOT (+) \(\rightarrow\) \(\leftrightarrow\)
COLD (-) \(\rightarrow\) \(\leftrightarrow\)

BLOCK DIAGRAM*

* Subject to change without notice.
THREE YEAR TRANSFERABLE LIMITED WARRANTY

RADIAL ENGINEERING LTD. ("Radial") warrants this product to be free from defects in material and workmanship and will remedy any such defects free of charge according to the terms of this warranty. Radial will repair or replace (at its option) any defective component(s) of this product (excluding finish and wear and tear on components under normal use) for a period of three (3) years from the original date of purchase. In the event that a particular product is no longer available, Radial reserves the right to replace the product with a similar product of equal or greater value. In the unlikely event that a defect is uncovered, please call 604-942-1001 or email service@radialeng.com to obtain an RA number (Return Authorization number) before the 3 year warranty period expires. The product must be returned prepaid in the original shipping container (or equivalent) to Radial or to an authorized Radial repair centre and you must assume the risk of loss or damage. A copy of the original invoice showing date of purchase and the dealer name must accompany any request for work to be performed under this limited and transferable warranty. This warranty shall not apply if the product has been damaged due to abuse, misuse, misapplication, accident or as a result of service or modification by any other than an authorized Radial repair center.

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This product is intended for professional use only. The user should be familiar and experienced with the 500 series rack and module format.

Radial Engineering Ltd.
1588 Kebet Way, Port Coquitlam, British Columbia, V3C 5M5
tel: 604-942-1001 • fax: 604-942-1010 • email: info@radialeng.com

www.radialeng.com

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