



# Radial Engineering Workhorse

We don't like to nag, but if you're into the 500-series form factor, you must check this out says

GREG WALKER.

**N**ow that we're fully ensconced in second decade of the 21st century, and although we're still mostly driving petrol guzzling motor cars, in some areas we're actually making some progress. Cue Canadian company Radial Engineering's update of the 500-series Rack concept – the Workhorse. Housed in a robust 3RU 19-inch steel enclosure and packing eight slots to accommodate your favourite 500-series snacks, the workhorse raises the popular format's racking stakes significantly by adding quite a feature list to its basic module housing duties.

## Catch The Bus

The Workhorse's eight card slots come with easy glide trays to make fitting modules very straightforward. The trays can be removed to fit non-standard and double-width modules, and each 500-series module can draw as much current as it needs from an overall pool of 1200mA. This power is produced by a high-current external switching power supply. Radial has dispensed with any form of power switch so when the unit is plugged into the mains, it's on.

Hogging the limelight to the right of the rack slots is a basic but high quality eight-channel mixer and summing bus, equipped with pan and level pots as well as an overload LED and mute switch for each channel. A simple master section offers separate pots for master and monitor output as well as level control for a pair of front mounted high output headphone jacks. The main outputs utilise isolated Jensen transformers to reduce noise in live applications and deliver some extra analogue chutzpah to the mix bus. Small LEDs show the status of the  $\pm 16V$  power rails and phantom power, and there's a mono switch for quickly checking stereo phase issues.

While smallish, all the front panel controls have a smooth feel to them and the unit gives off an air of 'workhorse-like' durability. Incidentally, the low-key blue and black colour scheme sits nicely with the standard

API modules while making the bolder colour schemes of certain other manufacturer's modules – as well as some in Radial's own collection – look very... how shall I put it... visual.

## Tradeshorse's Entrance

Around the back things are pretty hectic (and comprehensive) with all module I/Os duplicated on XLRs, TRS jacks, and balanced 25-pin D-sub. TRS inserts are provided on the main outputs and an extra D-sub handles direct ins from your DAW or other recorder so you can bypass the module section altogether and use the workhorse as a stand-alone eight-channel summing mixer. A pair of 1/4-inch jacks allows you to expand the mixer to a 16x2 format by connecting a second Workhorse while external grounding lugs provide for pro-studio style star-grounding schemes. Not content with all this connectivity, Radial has also added some handy extra functionality to each module's housing, starting with a stereo link switch that allows for the electronic linking of two mono units – a pair of compressors,

**“While smallish, all the front panel controls have a smooth feel to them and the unit gives off an air of ‘workhorse-like’ durability.”**

for example.

More unusually, a 'Feed' function automatically patches one module to its direct neighbour without the need for external cables. The great thing about this is that you can install your modules in your preferred channel strip order, patch them in by flicking a few switches around the back, and still have access to each module's individual output. This is a great feature, and here's why.

Let's say you track a vocal through a pre-amp and then feed it to an EQ for some treatment before feeding that signal on to a compressor. By recording the output of each module simultaneously you can retain the clean pre-amp signal, the pre-amp plus EQ, as well as the full chain. If you re-assess the processing later you can go back to square one with the clean vocal or perhaps use the three separate signals for some parallel mix action. ►

## THE REVIEWER

GREG WALKER is a regular contributor to *AudioTechnology* magazine in Australia and is also well known as a musician, independent music producer, and film composer. His band, Machine Translations is one of Australia's quirkiest independent acts.



- And, of course, while you're actually tracking, the vocalist is able to monitor with zero latency via the Workhorse's headphone send, which is always beneficial, especially for performers who are sensitive to small latency delays.

### Recording 'In Omni'

Last but not least is the 'Omniport', an additional TRS jack that's routed to edge pins seven and nine on each module card. These pins were never used in the original 500-series spec, meaning that this additional circuit can be used to enhance the functionality of suitably provisioned modules in any number of ways. For instance, the Omniport is used as a sidechain key input by Radial's own Komit 500 compressor/limiter module, while other modules use it for such things as lo-Z output or an unbalanced insert jack. The Omniport provides a little extra breathing room for 500-series module designers in what has always been a very space-challenged format. Other manufacturers have already started jumping on board the Omniport wagon, including Australia's own JLM Audio, and that will inevitably grow more popular as time goes by.

### Summing To Think About

It's hard to imagine squeezing any more functionality into a 3U device like this, and Radial is to be congratulated for putting plenty of thought and design smarts into such a compact and attractive package. The Workhorse doesn't cost an arm and a hindquarter more than the other full-width 19-inch 500-series rack options out there, yet this extra functionality will be invaluable in areas as diverse as live recording, or anywhere that requires zero-latency monitoring, headphone mixes, mix processing and, of course, analogue summing.

While I've never quite bought into the summing concept (why would I want to buy a mixer with no EQ?), I've got to say I am drawn to the Workhorse option as it's so compact and seems like a bonus given what else the unit does. The sound of the summing here is rock solid with great stereo imaging and the Jensen transformers give things a tasty little lick on the way through. The only negative for me is the lack of centre detents on the pan pots, but in context that's a smallish issue, and can be worked around easily with a tone generator and some meters. On the positive side, for those who like to track and reprocess through more complex processing chains the additional connectivity and routing options are a real time saver. Not only does the 'Feed' function stop the back of your 500-series rack from looking like something they serve in

an Italian restaurant, it keeps cable runs short and you can easily see what's going where. I'm guessing the Workhorse will find its way into quite a few studio and live rigs where the unit's solid build and rich feature list will help smooth out workflows and save valuable space.

If you've got a few 500-series modules out in the back paddock or are thinking of buying into the format, the Workhorse definitely won't leave you with a long face. Now where did I put my saddle? **1512**

### WHAT ARE MY OTHER OPTIONS?

No other manufacturer currently offers anything like this level of functionality in a 500-series rack, though JLM Audio does offer a clever headphone mixer that can slot into the power supply area of the standard API Lunchbox. JLM will be bringing out a new rack in the coming months too. Other manufacturers such as BAE, Empirical Labs, A-Designs, Purple, and OSA all make racks of various sizes ranging from simple 1U 19-inch racks to fit two horizontal modules all the way up to full width 11-module housings. If you're interested in the format, check out our 500-series product sampler special on page 38 of this month's *Audio Media*.

### INFORMATION

① GB£1,499.00 (exc.VAT) - Workhorse 5000

② Radial Engineering, 1588 Kebet Way, Port Coquitlam, British Columbia, Canada, V3C 5M5

③ +1 604 942 1001

④ www.radialeng.com

⑤ UK Distributor: Shure Distribution, Unit 2 The IO Centre, Lea Road, Waltham Abbey, Essex EN9 1AS

⑥ +44 (0) 1992 703058

⑦ www.shuredistribution.co.uk

## Primacoustic IsoTools™ ... recording just got a whole lot Better!



**VoxGuard™ \$99\***  
Ambient noise controller outperforms all others - now features pressure release slots and mic positioning slider.



**TriPad™ \$19\***  
Mic stand isolators stop floor resonance from getting into the mic.



**CrashGuard™ \$35\***  
Reduces sound from cymbals entering drum mics for cleaner recordings.



**KickStand™ \$75\***  
Kick drum isolator also improves transient response and clarity.

\*Estimated street price USD



**PRIMACOUSTIC®**

**... take control of your room!™**

A division of Radial Engineering Ltd. - 1588 Kebet Way, Port Coquitlam BC V3C 5M5

**www.primacoustic.com**