

Simple, Pure

A valve pre-amplifier with gorgeous build quality, finish and sound. Noel Keywood explains.

Roll up your sleeves – this is a kit (but it can be bought built). A kit pre-amplifier with valves. At £725 World Designs Pre4 isn't a kit designed to save you money, so much as one aimed to deliver great sound from a unit whose fundamental build quality and finish you'll find few places else.

This is a kit that will last a lifetime, because of the pride and satisfaction behind building such an item yourself, its intrinsic quality and of course its accessibility for repair or upgrade. You'd never junk Pre4; it's not a throw away; I still have and use my World Audio Design – predecessor of World Design – preamps that were designed with the same aim in mind. Never to become obsolete and re-cycled.

To build it you must be able to use a soldering iron – and it helps to have some idea of what electronic components are about. Although, on the other hand, many World Audio Design kits went to educational establishments, but I guess a tutor would be present.

With Pre4 high voltages exist inside, so it must be handled with care when switched on and the circuitry exposed for test purposes. A multimeter is needed for final testing.

There is a build service, cost £200 to have Pre4 built.

Pre4 is a preamplifier with gain of x5 from its phono socket inputs to phono socket (unbalanced) outputs, or x10 from phono socket inputs to XLR socket (balanced) outputs. Although the internal ECC82 valve gain stage, one per channel, is a conventional unbalanced design, balanced output is provided by line-drive output transformers. The point of this is to attain a low impedance but high gain from one double-triode amplifying valve, avoiding the use of a cathode follower or silicon chip for line drive – the usual solution. Isolated secondary windings also avoid hum loops. And a bit of religion: transformers always deliver the best sound when designed properly!

What impressed me about Pre4 was its fabulous build and finish, as well as remote control of volume and input switching. A front panel machined from a 4mm thick aluminium billet, custom machined control knobs chrome plated, and a high quality motorised Alps volume control give it a lovely feel – firm as a rock – and appearance. The WD logo and text are actually etched in, likely by a computer controlled milling machine. Few manufacturers go this far. Size is 220mm wide, 314mm deep

and 82mm high, with a weight of 4.5kgs.

Turn the input selector switch and its silky solid action promotes small clicking sounds from sealed small-signal relays deep within. They have low contact resistance and last forever (rated at millions of operations). The switch isn't a switch in fact, it's a rotary encoder and the relays allow input selection by remote control. It's a solution we used in WAD preamps after disassembling mechanical switches with silver contacts, only to find the soft silver plating had been pushed aside after a very short time, raising contact resistance and degrading performance. This is where hi-fi products in real life can deteriorate fast for reasons few understand or appreciate, so they're rarely mentioned. Sealed relays designed for audio are a definitive solution; Pre4 is more than it seems.

The cleverly laid out internal circuit board carries LEDs that indicate visually which input has been selected – a nice touch.

Alps are the go-to source of high quality audio volume controls and Pre4 uses their popular motorised unit that can be remote controlled. Press up or down on the remote and watch the volume control knob



move in ghostly fashion! Build Pre4 and you learn how it all works behind the scenes.

The remote control unit is generic, not purposed for Pre4, but that is to be expected for a specialised low-volume kit – we're not talking Sony here. It is small and lightweight, so unobtrusive.

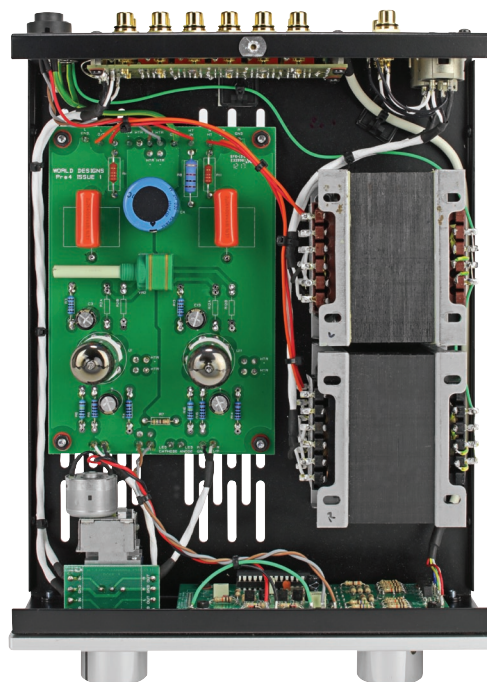
Avoiding hum in a valve preamplifier is difficult so power is external, from a supply that will also feed Phono3, an all-valve phono stage. The main issue here is cost – £299 for PSU3. The power supply has been styled to match Pre4 rather than be hidden away, demanding another alloy fascia and custom machined and plated knob. The power lead carries 400V d.c. and 6.3V d.c. for the

ultra low noise. Size is 135mm wide, 314mm deep and 82mm high.

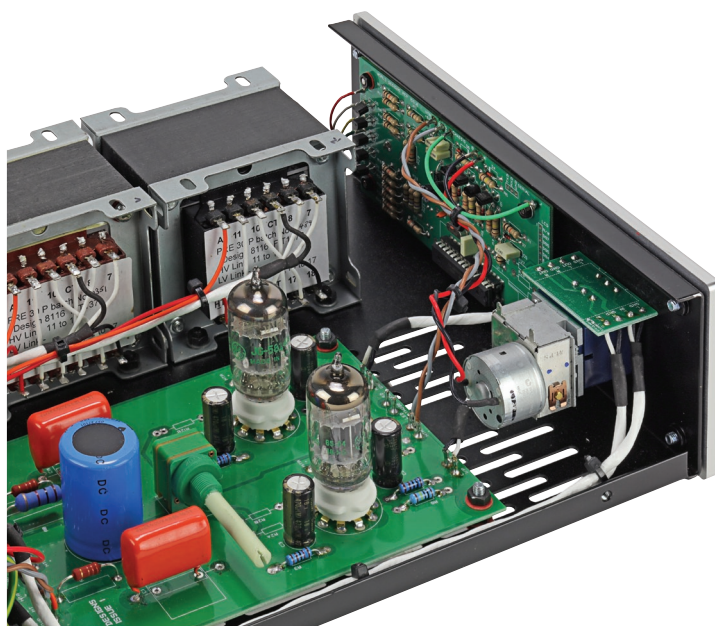
SOUND QUALITY

I connected the World Design Pre4 via Chord Company Epic balanced XLR cables to our Creek Evolution amplifier through its direct (no volume control) balanced Line 4 input. It fed our Martin Logan ESL-X loudspeakers through Chord Company Signature cables, the system being run from an Isotek Evo3 Mosaic Genesis regenerated mains supply. Source was an Audiolab M-DAC+ connected to a Chord Electronics M Scaler digital filter fed CD from an Oppo BDP-205D acting as a transport, as well as hi-res.

Oh the sound of valves! Spinning



Top view shows a rear relay board, main board with valves, massive line output transformers, a front indicator board and motor driving the Alps pot (bottom left).



A clear view of the Alps motorised volume control (right), front indicator and input select board and massive line output transformers – expensive (so not used by anyone else).

heaters. This can be made long if you wish allowing the power unit to be placed away from the preamp if space is limited. Similarly, the balanced output of Pre4 can also be made long, feeding a power amp – valve or transistor – on the floor perhaps.

Construction is on circuit boards with plated through holes, the instruction manual carrying numerous coloured pictures and diagrams to explain where everything goes. When complete and running, gain can be set internally to match outside sources. There is no feedback in the circuit.

PSU3 is solid-state but possesses (expensive) choke regulation for

Josefine Cronholm's In Your Wild Garden (uncompressed CD) I was caught up in the spacious, texturally rich, dynamic but easy going sound that only valves can give. Her microphone seemingly gave not only the subtle modulations and inflexions of her vocals but also the background ambience it was collecting. Free from the hard quality of solid-state, Pre4 came over here as naturally rich and crystal clear, without any hint of crystal to the clearness. As if a glass window had



The power supply unit, PSU3, with toroidal mains transformer at right, frame choke (top), Schottky diode rectifier and smoothing capacitors.



XLR balanced line outputs at left, together with solid, gold plated phono sockets. There are five line inputs and a tape out at right.

been removed to let in natural light and an open view of the outside world. Simple, yet full of life.

I went into listening thinking limited bass and treble might be obvious in the sound. Pre4 is so open and clear it is not warm or soft. Quite the reverse, it has a lucidity that is forceful in its own way: "just hear this". That's the treble bit.

Bass quality was interesting. Pre4 proved fast, able to discern the

natural resonant quality of a bazouki in Loreena McKennitt's Gates of Istanbul. There was a fluidity in the progress of this track that seemed unquestionably natural – sharply timed yet with no sharpness in its timing. With the capacitor fitted to our review unit imposing a low bass limit of 100Hz (-1dB) I would increase its value from 0.1μF to 0.22μF or so to add some extra weight but as it stands Pre4 comes over as clean and fast.

With a kit you can alter components to tweak the sound.

The simplicity and purity of Pre4's circuitry made it transparent to the source, clearly revealing what Audiolab's M-DAC+ was delivering from CD, via Chord Electronics M Scaler. Pre4 passed this information through with a sense of natural clarity elusive to other preamplifiers.

CONCLUSION

World Designs Pre4 preamplifier was a delight. It has a simple purity of sound that evades most others, a balanced output with high gain that suits modern balanced power amplifiers and both build quality and finish that shades all else. Complete with remote control, in its own quiet way Pre4 is a beacon of audiophile standards. The built version at £1304 (inc. built PSU3) is of higher quality than most other preamps available. If you want a top quality preamp this is the one.

The umbilical power cord that carries 400V d.c. and 6.3V d.c. for heaters.



Rear of power supply PSU3. It will feed both Pre4 and the World Designs Phono3 valve phono stage.

MEASURED PERFORMANCE

Pre4 gain measured x5 (14dB) from the line inputs to phono socket (unbalanced) line outputs, with a maximum output of 3.5V.

From line inputs to XLR socket (balanced) outputs gain measured x10 (20dB) and maximum output 7V. With a lot of expense in the output transformers, Pre4 is best used from its balanced XLR socket output, that had a low output impedance of 40 Ohms.

Because the line inputs feed direct into the volume control there is no input overload limit. The output limits are more than enough to feed all power amplifiers, most needing 1V into a phono socket input (unbalanced) or 2V into an XLR socket input (balanced).

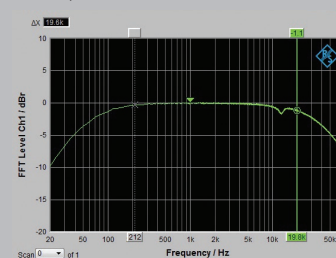
Frequency response shows output rolls down above 20kHz and below 100Hz (-1dB). The upper limit is likely set by winding capacitance in the

output transformer, but the lower limit by a 0.1μF coupling capacitor that is easily changed for more downward extension, to add some low end weight. Noise was low at -100dBV and distortion also low at 0.1% for 1V output.

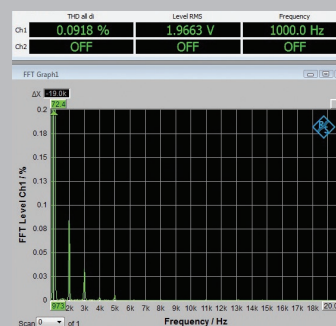
This is a fascinating circuit arrangement with its use of output transformers. It measured well in all areas. **NK**

Frequency response (-1dB)	
100Hz-20kHz	
Distortion (1kHz, 5mV in)	0.1%
Separation (1kHz)	68dB
Noise (IEC A)	-100dBV
Gain (unbal., bal.)	x5, x10
Overload (unbal., bal.)	3.5V / 7V
Output impedance (XLR)	40 Ohms

FREQUENCY RESPONSE



DISTORTION



WORLD DESIGNS PRE4 £725 KIT



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

A lovely valve preamplifier with superb sound and modern day ability.

FOR

- sound quality
- remote control
- build and finish
- balanced output

AGAINST

- needs skill to build
- no digital

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