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HI-FI WORLD

Sweet dream

McIntosh have released a new phono stage where the old and new sit alongside each other in complex combination. Noel Keywood looks closely.

Phono stages: I dream about them, but I never had a dream like this. The new MP1100 phono stage from McIntosh (New York) is quite unlike anything that would pop into my head in the middle of the night, but McIntosh do a lot of things differently – and also very well. Their new MP1100 phono stage, priced at a considerable £10,900, is both fascinating and impressive.

Like the lovely Luxman EQ500 (£4495) I tested in our March 2017 issue, and like our in-house Icon Audio PS3 phono stage, the MP1100 uses valves, something I will talk more about later, and it caters for MM and MC cartridges. There are no fewer than three turntable inputs with each configured differently – let's say one for dad the audiophile, one for daughter the DJ and one for grandad's 78s. To cope with all this the MP1100 has pre-programmable 'configurations'.

I didn't mention grandad gratuitously, because McIntosh are also dialling into music history here by incorporating compatibility with LPs that pre-date what we know and use today: RIAA equalisation. The MP1100 has alternative equalisations used by earlier commercial disc formats, these being LP by Columbia, AES (Audio Engineering Society) and NAB (National Association of Broadcasters), as well as grandad's 78s.

The U.S. has musical history that it wants to retrospectively appreciate and the MP1100 facilitates this through its multiple equalisation curves.

The turntable inputs are through phono sockets (unbalanced). However, input No3 also has a

balanced XLR socket. Running fully balanced greatly reduces hum and noise of all forms; its preferable to all else both in theory and in practice I have found.

In addition to three turntable inputs, there are two Line inputs; Line 1 is through phono sockets (unbalanced) and Line 2 through XLR balanced) sockets. Using phono or XLR in-to-out there is no gain; phono input to XLR out gives x2 gain; XLR in to phono out gives x0.5. Line in does go to Digital out as well.

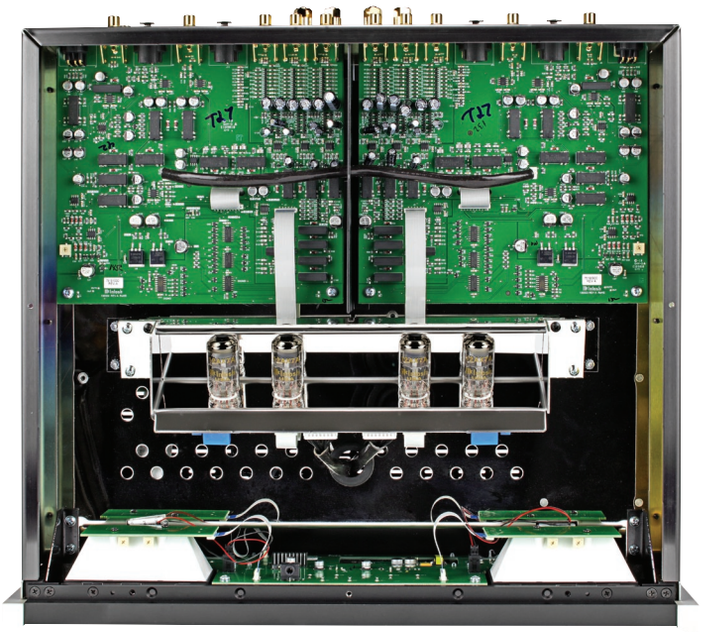
Unbalanced phono socket outputs and balanced XLR outputs are fitted, measurement showing the latter give twice the output of the former, effectively doubling quoted gain values.

Surprisingly, there are digital outputs too, so you can rip LPs to digital files. Appropriately, McIntosh fit a high resolution 24/192 Analogue-to-Digital convertor. Both USB and S/PDIF digital are available, the latter via phono-socket electrical and TOSLINK optical connectors, as is common.

A disappointment was lack of an on-board volume control, so the MP1100 must be used with a pre-amplifier, increasing system complexity and cost – even though it has enough gain to drive a power amplifier direct. It does however, have a remote control that allows cartridge loadings and gains to be adjusted from the listening position.

Size wise, this is a substantial unit, designed to fit a 19in rack – which hi-fi racks all are. It is therefore 18in wide (457mm), 445mm deep and 152mm high. Weight is high at 12kgs, with plenty of heavy sheet steel used in the case work; the top cover was unusual heavy I found. The bottom of the case is stainless steel and carries power supplies, and a digital section, effectively shielding these components from the sensitive analogue stages above. Build quality and finish are very good, and as always we have the company's particular styling, with blue display readouts, blue illuminated output meters and big rotary knobs.

12AX7 (ECC83) double-triodes are used as amplifiers in fully balanced circuitry. These have a 10,000 hour life and are cheap to replace should it be necessary (unlikely).



This is a massively complex phono stage complete with micro-processor controlled switching via relays, seen as oblong black objects on the board. Much of the board uses miniature surface-mount (SMD) parts and it is robotically manufactured.

Curiously sited on top of the cabinet in a window lie the valves, four 12AX7 double-triodes. Since you can't do all the MP1100 does with just four 12AX7s there had to be unmentioned transistors inside and indeed I found numerous N5532 low noise audio chips clustered around the phono inputs, on a large, robotically produced circuit board bristling with miniature surface mount (SMD) parts, accompanied by an army of sealed relays. They contribute substantially to a stable and reliable product, in this case switching all the many options the unit possesses. The valves it would seem are used in intermediate stages, since dedicated silicon chip input and output stages cost less and perform better.

IN USE

Switching on, the McIntosh pauses whilst the valves warm up, LEDs beneath them glowing orange. When ready to go their colour changes to green. For those that dislike valve lighting, the display can be switched off. Mains power consumption is 50 Watts; we ran the unit from an Isotek Evo3 150 Watt mains regenerator. There was no switch on noise, such as clicks or thumps.

There are five gain settings: 40dB and 46dB are for high and low output MMs; 52dB (x400) is for high output MCs, whilst 58dB and 64dB are for conventional and very low output MCs respectively. Technically, it's best to use lowest gain possible and turn volume up, by the way, because this lessens the likelihood of overload, but the MP1100 has a clip warning indicator to warn of this if the unit is mis-set, and the meters provide similar warning. I used 58dB for an Ortofon A95 MC cartridge and 40dB for Ortofon 2M Black MM.

Input impedance can be set at 25, 50, 100, 400 and 1k Ohms for MCs and 47k for MMs. MCs (moving coils) should be set according to the cartridge manufacturer's instructions, most being designed for 100 Ohms, but MMs (moving magnets) need a 47k load.

Input capacitance loading can

also be set from 50pF up to 400pF is 50pF steps, but this is for MMs only, affecting frequency response.

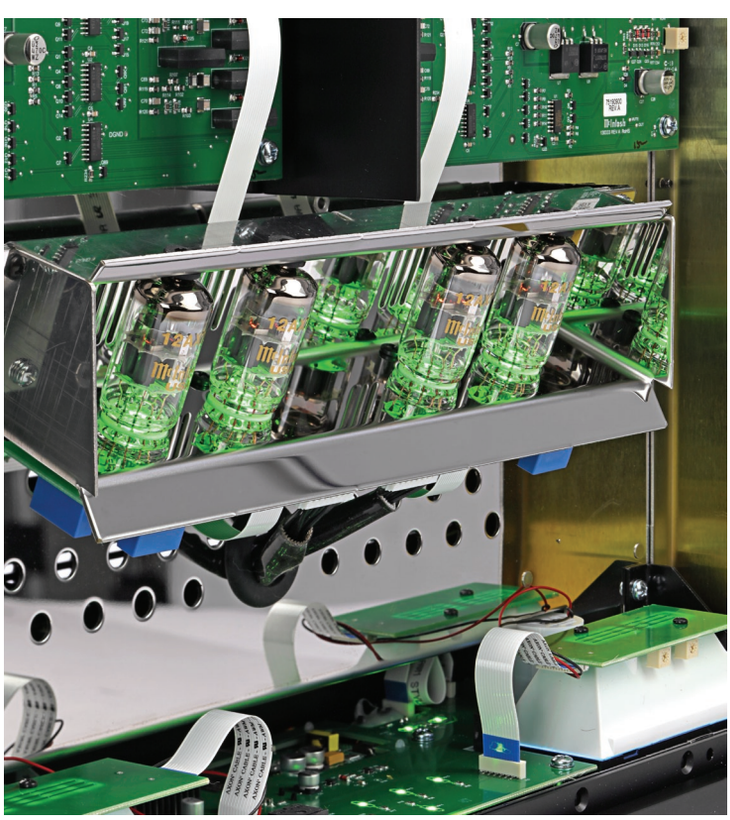
Ideally, a turntable should be run balanced. This requires a minor re-wire to balanced cables and XLR connectors, one per channel. Because few balanced-input phono stages exist and even fewer of them have fully balanced internal circuitry (quite easy using chips) this is a rarely encountered option. Balanced working cancels distortion, noise and interaction with distorted earth currents. So McIntosh's option to do this on the MP1100 inevitably caught my eye. It's good that at last a mainstream manufacturer bothers to do this on a serious phono stage, especially when it has obviously been designed with historical archiving in mind (see our Boxoout).

Valve phono stages (with input transformers) sound better: smoother, more spacious and organic in quality. However, valves are too noisy to be used with MC cartridges unless input transformers are used. McIntosh have elected not to go down this path, producing a hybrid design in the MP1100 that has transistors to prevent noise being an issue. Again, I suspect that the historical suggestion made by valves (tubes) – authenticity being the key word here – has something to do with valves appearing in a window. Bear in mind here McIntosh also make tube amplifiers – and they always have done, so the company has a long and strong connection with tubes.

What look like gold amplifier output terminals on the lower case-work are in fact earth terminals for turntables – up to three can be connected. At lower right sit the digital outputs.

In addition to NAB, AES, RIAA and LP equalisation curves (see downloadable handbook on 'net) there are rumble and scratch filters to help clean up old recordings.

And finally the digital bit. Apple Macintosh computers (as they call them) do not need drivers (as per usual) whilst PCs do (as per usual). You need a music editing programme to record LP and here McIntosh mention Vinyl Studio by Alpinesoft, but the free Audacity programme is very popular and also very suitable.



The four 12AX7s sit in their own compartment at top, visible through a window in the top cover. An LED sits under each, lighting orange at warm up and green when running.

SOUND QUALITY

I used the MP1100 with a Timestep Evo modified Technics SL-1210 Mk2 turntable, SME309 arm and Ortofon MC-95 moving coil cartridge. Output was taken balanced to a Music First Audio magnetic preamplifier and thence to our in-house McIntosh MC152 power amplifier driving Martin Logan ESL-X hybrid electro-static loudspeakers. I also used direct connection via the unbalanced output to our Icon Audio Stereo30 SE single-ended valve amplifier that has a volume control for an alternative approach. The McIntosh MC152 is transistor and gives intense insight and detail, as well as great bass grip. The Icon Audio Stereo30 SE is super-smooth, easy and spacious.

On the MP1100 McIntosh have fitted a microprocessor to control all the switching, avoiding bangs and thumps. I found I could switch gains etc on the fly as a result; no need to switch off or turn volume down. The A-95 cartridge needed 58dB gain as it has quite strong output. With this set there was absolutely no hiss or hum in the loudspeakers, even with my ear pressed against the stators.

Spinning Mark Knoplfler's True Love Will Never Fade, from Kill to Get Crimson (180gm) – a test track I use a lot and know well – the MP1100 showed immediately the sort of character I expected. It has a dry and revealing quality, yet it also has a nicely involving resolution of instrumental and vocal textures, rather than the hard, bleached quality common to unbalanced, silicon chip phono stages. There was a sense of spaciousness around Mark Knopfler's

voice and his guitar chimed out strongly, embellished with firmly etched and obvious fine treble. This is a phono stage with good projection and the presence of valves helps here. I noticed bass was a both tight and clean, but not emphasised or overly fulsome as can be the case with valves. The presence of a warp filter is largely responsible for the unit's composure and lack of bass wallow. When the background bass line kicked in half way through True Love Will Never Fade it took a nicely solid form I could follow easily. The McIntosh seemed to have it all on this track, shown by the sense of control, the structure and order of CD, whilst at the same time adding better resolution of timbral content accompanied by stronger projection of instruments and vocals.

"Projective" is the word that came to mind when listening to Mozart's Symphony No25, on an excellent Decca LP re-mastered and re-released on 180gm vinyl by Pro-Ject. Violins fairly jumped from the XStat electrostatic panels of our Martin Logans, with a bright sheen overlaying a strong sense of animation from the instruments and the musicians behind them of course.

These were the dominant sonic properties of the unit and they remained across a wide range of LPs played. Curious to explain that a phono stage can bring life to a performance, but there it is. The MP1100 is not backward in coming forward, as they say, and you get a nice big dose of "life" courtesy of the valves. It brought both clarity and excitement to LP, all in well ordered fashion.

CONCLUSION

In essence, this is a phono stage that has it all, except for a volume control. It matches any cartridge, will run three turntables at once, can be adjusted on the fly using remote control and it even has bright blue output meters to warn of overload if mis-set. Add in a 24/192 high resolution digital output so LPs can be digitally archived or turned into files for phone or portable player and you have it all. Just add in a great sound, compatibility with rare historical recordings and even an option to run fully balanced, input to output and you start to see what is on offer and why it is so priced. My dreams never got so far but others could manage better by listening to the new MP1100. It has the lot.

ARCHIVING TO DIGITAL

The early disc equalisation curves this preamplifier has on-board puts it into different territory to most else – at least in domestic audio. "A serious archivist needs at least 60 options" Dave Cawley of Timestep told me, before he headed off to an ARSC (Association for Recorded Sound Collections) conference in San Antonio, Texas, to chair meetings. "But for the amateur at home it's a good start".

America's Library of Congress demands high transcription standards before accepting materials to its archives – and no MP3! Nowadays it asks for digital recordings of LP to be made without EQ for historical storage, and also with EQ so as to have a immediately playable file, technically correct or not. As Dave Cawley explained to me, every recording company had its own EQ in the early days of recorded music and technical details have been lost, so EQs are commonly matched to recordings subjectively, through listening tests. Hence the need for unequalised references, in case the match was incorrect.

The MP1100 offers a basic set of five EQ curves for – well – budding archivists. It even has a 78rpm curve for grandad. It is more than a hi-fi phono stage.

MEASURED PERFORMANCE

Gain values of 40dB (x100) up to 64dB (x1585) are quoted and were met; for example with maximum gain of 64dB, 1mV in gave 1660mV output – very high gain and enough for a low output MC cartridge. That was unbalanced input to output (phono sockets). The balanced XLR output gave double the output of unbalanced, offering a massive x3160 gain maximum.

Overload was set by a 10V output limit from unbalanced and 19V from balanced, so the MP1100 manages well in this respect also. The output meters show maximum well before actual output overload occurs, being calibrated for digital overload.

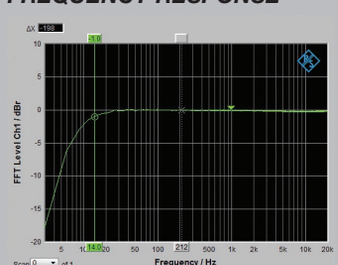
Equalisation (RIAA) accuracy was absolutely correct, as our frequency response analysis shows. Low frequency gain (Rumble filter off) was curtailed below 14Hz, giving a measured frequency response of 14Hz—20kHz. There is -8dB attenuation at 5Hz to warps.

The Rumble filter is drastic, rolling off gain sharply below 53Hz (-1dB point) and this will lighten bass.

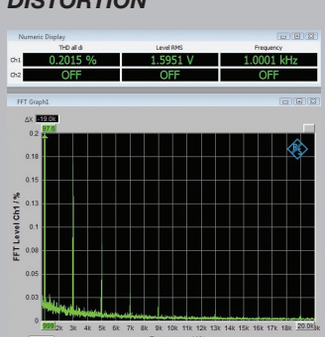
Distortion (1mV in, 64dB gain) measured 0.2%, with third and fifth harmonics suggesting it was not from the valves.

Equivalent input noise (what you actually hear) was minimum at the highest gain setting of 64dB (x1500), measuring an unusually low 0.04μV, a level at which hiss will be inaudible. At 58dB (x800) the figure was 0.05μV, at 52dB (x400) 0.08μV, at 46dB (x200) 0.15μV and at 40dB (x100) 0.28μV. A value of 0.1μV is very quiet and anything lower excellent, so the MP1100 is exceptional in this area. The 40dB figure is noisy but purposed for high output MMs that are noisier (thermal noise).

FREQUENCY RESPONSE



DISTORTION



The CLIP display and the meters indicated maximum early: both are linked to digital overload, not overload in the analogue amplifiers, to maximise dynamic range. The MP1100 ADC (via Aux input) was not linear for 24bit, measuring 0.4% distortion at -60dB, where 0.1% or better is expected. Bandwidth was good, frequency response measuring flat across the audio band, and the optical output delivered a 192kHz sample rate signal where many do not.

For a complex and large phono stage with so many switched options the MP1100 measured well. The digital section needs a better ADC however.

NK

Frequency response	**14Hz- 20kHz**
Distortion	**0.2%**
Separation	**78dB**
Gain	**x100 – x1500**
Overload	**10V, 19V out**
Noise (e.i.n., 64dB gain))	**0.04μV**

MCINTOSH MP1100 £10900

OUTSTANDING - amongst the best

VERDICT

A top quality phono stage with massive versatility and a great sound. Expensive but worth it.

FOR

- clear, projective sound
- no hiss or hum
- fully balanced all through
- digital output
- matches all cartridges

AGAINST

- size
- top viewing window
- no volume control

Jordan Acoustics
+44 (0)1592 744779
www.jordanacoustics.co.uk