

Design for life



Class D promises much, but doesn't always deliver. So what of Musical Fidelity's brand new M1 PWR amplifier? *Jimmy Hughes* decides...

Class D amplification has been around for donkeys' years – it's not, as some suggest, a recent phenomenon. Indeed, the benefits are well known; in a world of rising energy prices it's extremely efficient, drinking very little power and producing negligible heat. In turn, this means relatively high amounts

of power can be obtained in fairly small spaces.

Trouble is, the sound quality of Class D amplifiers has been patchy; more miss than hit until quite recently. This has allowed a sort of 'hi-fi urban myth' to arise, which states that Class D amps sound bad. *Not true* – it's as ridiculous as saying all vinyl is soft and sumptuous, or

DETAILS

PRODUCT:
Musical Fidelity M1 PWR

ORIGIN:
UK/Taiwan

TYPE:
power amplifier

WEIGHT:
3.9kg

DIMENSIONS:
(WxHxD)
220x100x315mm

FEATURES:
• unbalanced RCA phono inputs

• RCA loop output
• switchable bridgable operation
• power: 90w to 250w
AC 50/60Hz

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all valve amps are cosy and warm. As ever in life, it's not just what you do, it's how you do it.

Until now, Musical Fidelity has resisted the temptation 'to do a D'. They've championed more conventional amps, including the superb pure Class A AMS35i integrated (as used by editor DP) and AMS100 power, as well as the humungulous Class AB Titan. But now, as if from nowhere, the new M1 PWR Class D power amp appears, promising serious sonics at an extremely attractive price. Moreover, it's not just another 'me too' product, as it sports one of the first ever implementations of the Texas Instruments power module; in a world of derivative designs, the M1 is unique.

A compact stereo power amp offering around 65 watts into 8 ohms and (see *Lab Report*), it's also possible to use two M1 power amps as a stereo pair – there's a



switch on the back to facilitate this. The result is increased power output; a claimed 100W (8 ohms) or 200W (4 ohms), and improved sound if the manufacturer's views are anything to go by...

Overall, build is very good, with nicely-finished high-quality metalwork and a 10mm-thick alloy front panel. However, weighing in at just 3.9kg, the M1 PWR does not offer the 'battleship'-build standards of MF's more expensive products. It's well-made, sounds good, and takes up very little space. But it's no behemoth – and indeed it could never be, with little need for acres of iron to sink the heat it doesn't produce!

The mains transformer is matchbox-sized – amazingly tiny given the output power on offer. Indeed, it would probably be considered 'small' if found in a preamp. But don't be fooled; it's only because Class D achieves such high-operating efficiency that such things are feasible. Those who 'listen with their eyes', considering things like weight, physical bulk and/or extravagant build quality, may be

disappointed by the M1 PWR's lack of heft. But, listen without prejudice, and you'll surely agree that the amp turns in an impressive performance. It's a superbly

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practical design – small, neat, and low-maintenance in every sense.

I started listening to one M1 PWR in stereo, replacing my regular MF kW-750. A few years ago, the kW-750 was Musical Fidelity's flagship power amp. Although no longer made, MF regards it as one of its finest creations. Indeed, company founder Antony Michaelson still uses this amplifier in his home system. Delivering 750W into 8 ohms, and well over 1,000W into 4 ohms, the kW-750 is an immensely powerful beast. It's big – and heavy. How big? Well, its outboard power

transformers alone are housed in a box that's larger than two M1 PWRs combined. If made today, a kW-750 might easily retail for over £10k. Not exactly your average iPod dock, then...

First listen

Given the high cost and lavish engineering of the kW-750, how might something as comparatively modest as the M1 PWR compare? The answer is – unexpectedly well. Sonically, the M1 PWR is not quite as refined as the kW-750, but the gap is surprisingly small – and certainly not reflected by the *huge* difference in price.

The M1 PWR sounds clean, fresh, and open, displaying a natural tonal balance and conveying a fine portrayal of dynamics. It is well-balanced and crisply detailed, giving the impression of having ample power in reserve. Tonally, it delivers a lean, lucid presentation of great clarity and transparency.

It's not exactly a rich, warm beguiling sort of sound, yet neither is it stark or over-bright. It's maybe a tad on the cool side of neutral, but only just. What immediately strikes you is the honest purity of the sound – clean, detailed, transparent, and open. It's impressively effortless too.

Bass is full and firm, but the kW-750's sheer bottom-end heft is not matched. It feels as though the speakers aren't moving quite so much air with the M1 PWR in the driving seat. The kW-750 amp is a shade more opulent. It has a certain magic the younger, less-expensive pretender doesn't quite equal. But, it's curious; once you've been listening to the M1 PWR for an hour or so, such distinctions start to become a little hazy. After a while, one starts to have doubts. Was the kW-750 really that much better? It certainly seemed so when the change-over was made, but then again the M1 PWR casts its own spell.

Indeed it really has a charm all its own, and punches well above its weight. After a few pleasurable hours spent in its company, you're almost persuaded it's fully equal to its bigger brother. Of course, the M1 PWR is flattering to deceive; if pushed *really* hard, the bigger amp's extra muscle starts to tell. Put simply, a kW-750 does not flinch.

Yet the M1 PWR's purity and lucidity are deeply impressive. Unlike some low-powered tube amplifiers that really operate close to the edge, the M1 PWR always gives the impression of being in control. Clarity is outstanding. It's very good at sorting out difficult 'congested' recordings because it sounds so clean.

Congestion charge

Listening to *Martha Wainwright's Piaf Record (Sans Fusils Ni Souliers a Paris)* via the M1 PWR proved highly instructive. The recording captures the intimacy of a dozen people playing live in a small venue, and conveys plenty of emotion. ▶

Q&A...

JIMMY HUGHES SPOKE WITH MF'S
FOUNDER ANTONY MICHAELSON



JH: What are the advantages and benefits of Class D operation?

AM: It generates very little heat so doesn't require large heatsinks, saving a great deal of space/volume and weight. The power supplies typically operate at high frequencies (100kHz to 300kHz) and consequently use much smaller transformers. This does not mean they have less capacity; they're smaller because they operate much more efficiently. Size doesn't always count!

What about noise?

Any power supply noise is about three octaves above human hearing limits and is, therefore, inaudible to all, but bats. Because there is no audible power supply noise, the sound is cleaner and more revealing. However, this cuts both ways; not only is it revealing of limitations in your source material, it also highlights any shortcomings in the amplifier design.

Would you say there are any particularly challenging aspects to Class D design, or is it the same ballpark as Class A (for which you're famous), or even Class AB?

How much space have we got! Musical Fidelity has an enviable record when it comes to making amplifiers with low distortion, excellent stability and exceptional load-driving ability. Such things are not easy to achieve in Class D, and it took much time and effort before we felt we had something worthy of the Musical Fidelity name. It offers very low wideband distortion, and output power doubles into 4 ohms, not common.

Class D has had a long and chequered history, but it's getting better all the time. Do you think it's going to be the future?

Possibly, but that's not to say all other forms of amplifier will become redundant. The M1 is a great performer, and terrific value, but, in truth, it is not as silkily refined as its great, great grandfathers, the AMS50 and AMS100.

IN SIGHT



- 1 two-stage mains input filtering and bridge rectifier
- 2 power factor correction circuit feeds the main switched-mode PSU
- 3 switched-mode power transformer with final rectification
- 4 power supply caps and TI's Class D amp under heatsink
- 5 output filter inductors (a feature of all Class D amps)
- 6 Relays switch between stereo and mono amp configuration

ON TEST

As promised, the combination of a switched-mode power supply and PWM (Class D) power amplifier yields great efficiency – the M1 PWR idling at just 5W and drawing a mere 84W from the wall with one channel delivering 65W/8ohm. Class D amps are more efficient the closer they are driven to full output, reaching 80% in stereo mode here. Musical Fidelity's use of PFC (Power Factor Correction) also helps, indeed about 90% of what you see in our inside shot (above) is 'power supply' with Texas

Instruments' Class D amp living under a small heatsink (caption 4).

Another feature of Class D output stages is their load tolerance, at least in terms of power. So, not only does the M1 PWR exceed its 65W specification at 70W/8ohm but this increases to a full 137W/4ohm, very close indeed to a perfect doubling of output. 'Payback' comes in the form of zero dynamic headroom, so the M1 PWR offers 70W, 137W and 227W into 8, 4 and 2ohm loads under both continuous or dynamic conditions.

Distortion is certainly not as low as with MF's other amps and increases with frequency from ~0.035% in the midrange to 0.6% at 20kHz. Neither is it as 'quiet', affording an A-wtd S/N ratio of 78dB (re. 1W/8ohm).

Like other bridged Class D designs, the M1 PWR's treble frequency response is influenced by the speaker load – into 8ohm it's 'bright' at +0.75dB/20kHz, while into a lower 4ohm it's a sweeter -0.5dB. So it's important to demo the M1 PWR with your own speakers if possible. **PM**



FOR US, THE M1 PWR's principal virtue is its exceptional purity and lucidity. Midband is very good, while treble is crystal-clear. The bottom end is, perhaps, slightly leaner and less voluminous than regular Class A or A/B amplifiers. However, it wouldn't be fair to say deep bass is lacking or curtailed. The kW750 delivered fuller more powerful low frequencies, and delivered more 'dimensional' highs. The bigger amp has a more 3D 'out of the box' soundstage, while the M1 PWR is a very revealing amplifier, yet it proved surprisingly clean on recordings with flaws. While it doesn't hide faults, it does not exaggerate them either.

Recorded in NYC, the production is very good. Technically, the sound is mostly excellent, yet sometimes things become a tad congested. Why? Probably because that's how it actually sounded at the time the music was being performed.

Martha Wainwright's voice can sound a little edgy and strained. She occasionally forces her tone to emphasise a musical point – during *L'Accordeoniste* (track 4), for example. Edith Piaf herself had a rather hard voice, and Wainwright is not aiming at a pretty sound.

The recording gives us a mix of the voice direct (as picked up by the main microphone), coloured by the main PA system to add a little extra ambience. Inevitably, a degree of tonal hardness/edge is introduced – just as there would be live.

At times, the sound lacks smoothness and refinement. Then, all of sudden, things change; a different group of instruments is used, and everything is beautifully clean again. The great thing about the M1 PWR is the way it lets you distinguish all this.

By not adding its own grunge, and not artificially smoothing things over, it allows you to hear the music

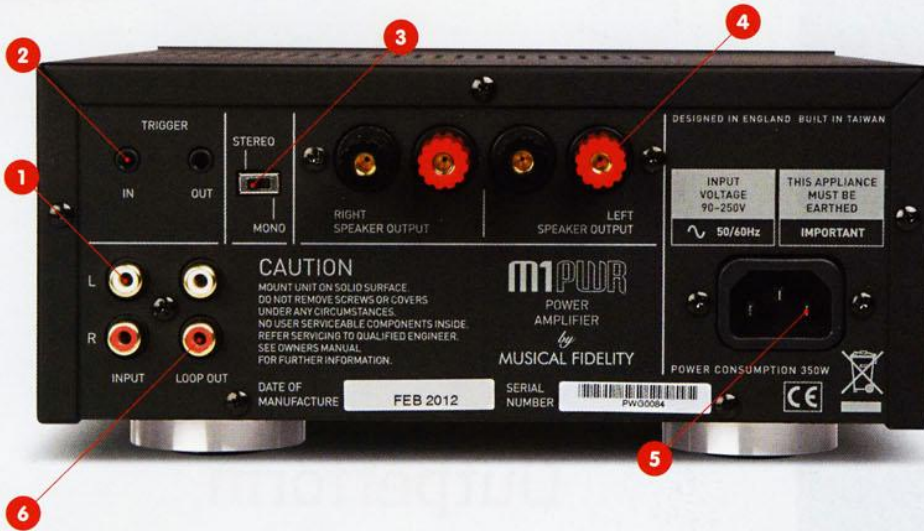
more or less exactly as it was recorded/played. It neither flatters nor exaggerates. You feel you're hearing things exactly as they were when originally recorded

Two become one

Adding a second M1 PWR enhances sonic performance still further, increasing output power from a quoted 65W to 100W, so that dynamic contrasts are widened. A single M1 PWR sounds extremely good, but adding a second sounds even better. You can start with one, and then buy another when funds permit. There appears to be little or no warm-up time. The sound is excellent when you first switch on, and doesn't seem to alter much during extended use. Again, this stands in stark contrast to big hot-running Class A designs, which definitely sound better after they reach their normal, sizzlingly high operating temperature.

The input is single-ended (unbalanced) only. Having balanced inputs as an option would have been a nice extra, but this omission is unlikely to be a deal-breaker for most users at this price, if we're honest. There's a loop output (basically a

CONNECTIONS



- 1 RCA phono analogue audio inputs; alas no balanced XLRs!
- 2 trigger sockets for use with system remote controls
- 3 two-way switch between stereo and bridged mono mode
- 4 2 pairs of speaker binding posts; mono-wire only
- 5 IEC mains input; responds well to aftermarket cables
- 6 loop out, handy for subwoofer connection

phono socket wired in parallel with the input socket) which would allow a sub woofer to be connected.

One final twist in our listening comparisons between the kW-750 and the M1 PWR occurred with a change of listening distance from the loudspeakers. When we sat close to the speakers, the M1 PWR's cleanness and clarity proved hugely advantageous.

Maybe it's fanciful, but it sounds as though the signal path in the M1 PWR is shorter, with fewer breaks in the chain. Sonically, Devialet's D-Premier created a similar impression of purity. The kW-750's signal path has many more 'interfaces', so Class D simplicity wins here.

However, when we sat further back from the speakers, something interesting happened; the kW-750's ability to conjure-up a broader more dimensional soundstage came strongly to the fore. The bigger amplifier now had something definite over the young pretender.

Sonic differences between near-field and mid-field listening are usually thought of as a loudspeaker thing. But, subjectively it impacts on one's impressions of the other components, too. In the writer's room, the optimum listening distance is about three to four metres.

At this distance, a more convincing impression of depth and three dimensional holographic soundstaging is created. Near-field listening produces a tighter more focused bass, and enables you to hear subtle phase information between the two channels better. Unfortunately, the ability to create a holographic stereo image that exists beyond, above and behind the loudspeaker boundaries is often diluted as you sit closer. The latter arrangement gives you a drier more 'direct' sound.

When heard at a distance of about three to four metres from the loudspeakers, the

kW-750 created a more tangible impression of real musicians playing in a defined space, compared to the M1 PWR. But this difference became noticeably less apparent as you moved closer to the loudspeakers, I found.

Conclusion

Lest we forget, a few years ago, Class D amplifiers would have been laughed at as 'lo-fi' by most enthusiasts. This wasn't

The M1 PWR is an outstanding amplifier at a very reasonable price. Go hear it for yourself...

without some justification of course, thanks to a distinctly mechanical sound and a general lack of tonal accuracy. But such views are no longer justifiable, as those days are gone. As expensive products like the Devialet D-Premier have forcibly demonstrated for example, a well-designed Class D amplifier is capable of comparing favourably with the best Class A and/or AB designs. That's not to say every 'D-type' is this good, but there's no longer any sense that the medium shapes the message.

While it remains true that big, expensive, no-compromise Class A giants like Musical Fidelity's own AMS-50 and AMS-100 reproduce music with a gorgeous three dimensional velvety richness that remains special and unique, the M1 PWR's crisp clear lucidity is attractive too. The more you listen, the more the M1's presentation grows on you. In has a character of its own, and it's not unendearing.

Although it wouldn't be true to say an M1 PWR beats something like a kW-750,

it does exhibit a clarity that in some ways improves on the bigger amp – a sort of immediacy and 'directness' that's very engaging, musically. The M1 PWR is very enjoyable to listen to then, and does not leave you feeling unsatisfied. Bigger amps like the kW-750 sound a tad more sophisticated; subtler and more finely shaded. But the M1's directness is engaging too. It's different, rather than worse.

The only caveat is that with this amplifier, more than Musical Fidelity's big bruisers, you'll need to audition it with your own loudspeakers. As our lab measurements show, the electrical load the speakers present to the amplifier has a greater impact on the performance of this little power amp than it would, say, on the aforementioned KW-750. That's why we don't keep banging on about the importance of getting a proper demo – of trying before buying – for nothing.

In my system, and to my ears, I really did find myself rather beguiled by this little box. It's no overstatement to say that the new Musical Fidelity M1 PWR is an outstanding amplifier at a very reasonable price. Go hear it for yourself. ●

Hi-Fi Choice

OUR VERDICT

- SOUND QUALITY** ★★★★★ **LIKE:** Very clean and transparent sound; small size; great value
- VALUE FOR MONEY** ★★★★★ **DISLIKE:** Balanced input connections would be nice, but lack is excusable given the modest price
- BUILD QUALITY** ★★★★★
- FEATURES** ★★★★★ **WESAY:** Exceptional performance in a compact, affordable package

OVERALL

