



DETAILS

	Rotel RMB-1077
	£1600
	www.rotel.co.uk
	01903 221500
	Pocket-sized powerhouse
	Lacks some musicality?

Along with SIM2's cracking C3X projector, one of the stars of our home cinema feature at this year's Hi-Fi Show was Rotel's diminutive 7-channel 'digital' power amplifier – the RMB-1077. How could this slimline unit, just 2.5in high, possibly drive six B&W 803D

topology that offers high efficiency (in excess of 90% at high power outputs) but with lower distortion, less interference and better control over its frequency response than we've seen from earlier Class D designs. And at 7x100W for just £1600 you're certainly not paying a premium for early

cooling. Enthusiasts with one eye on their home cinema and another on maintaining some semblance of domestic harmony might also have a chance of getting such an amplifier through the front door.

A quick comparison with monster, 7-channel power amplifiers from Arcam, Roksan

Custom install professionals are crying out for amps like this... there is simply no other multichannel power amplifier available that's this compact, elegant in appearance and cool-headed in operation

loudspeakers and a centre channel to such a crescendo, and with barely a whiff of heat?

The answer lies in B&O's ICEpower solution, a highly evolved Class D amplifier

adoption. The rationale for such an amplifier is obvious. Custom install professionals are crying out for high-power amplifiers that'll squeeze into a tight space but don't require external

and even the likes of Bryston or Parasound demonstrate in an instant just how effective Rotel's strategy has been. In short, there is simply no other multichannel power amplifier

TECHNOLOGY EXPLAINED

So is the RMB-1077 really a 'digital' Class D amplifier? No, but like true digital amplifiers it represents the audio signal by a stream of variable-width pulses. This is called PWM or Pulse Width Modulation. The wider the collective width of the pulses in a given period, the higher the amplitude of the audio signal which, in turn, is recovered using an analogue filter at the output. In a digital PWM amplifier, there are a fixed number of these pulses available (usually 256 from an 8-bit code), derived from the 16-24bit digital output of a CD or DVD player. An analogue PWM amplifier like the RMB-1077 has the benefit of continuously-variable width pulses and a bandwidth that's not tied down to the sample rate of the incoming data. Of course, by keeping everything out of the analogue domain, a digital PWM amplifier has the potential of lower noise and the prospect of signal correction, in advance, using DSP.

Controlled Oscillation Modulation (COM) allows Rotel to use a relatively standard switchmode PSU to feed all seven ICEpower modules. Meanwhile, Multivariable Enhanced Cascade Control (MECC) controls non-linearities in the PWM process and allows the amp to behave more like a conventional Class A/B amplifier but with Class D efficiency.

Keeping Cool

The Rotel RMB-1077 power amplifier delivers seven channels of 100W amplification from a light, slimline, eye-catching chassis. Paul Miller exposes Rotel's ICE-cool secret...

available that's this compact, elegant in appearance and cool-headed in operation.

CORE TECHNOLOGY

Of course, there's really no reason why previous Class D amplifier technologies couldn't have been expanded into a multichannel chassis. Perhaps the lingering doubts over their technical and subjective performance have stalled any such projects in the past. This is one of the first 'audiophile' executions of B&O's ICEpower amplifier modules, although this same core technology was used inside the B&W PV1 subwoofer launched last year.

Neither are these off-the-shelf parts shoe-horned into a familiar Rotel box, for its



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There's no room for balanced XLR's on this slim case, so all 7 line-level inputs here are serviced by RCA phonos instead. Each amplifier has its own pair of 4mm speaker terminals, but both 'red' and 'black' are floating so you should never connect them to a grounded loudspeaker. The 12V trigger sockets are a vital component for custom installers if the RMB-1077 is to be adopted as part of a fully-automated home cinema solution.

engineers worked closely with B&O's ICE team to refine the software for these 100W modules over a period of some 18 months. Much the same is true for the switch-mode power supply that maintains the lightweight/high-efficiency

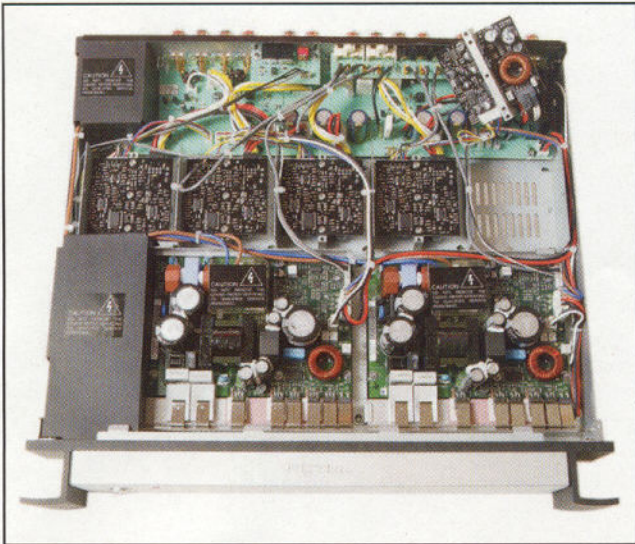
motif of the amplifier as a whole. After all, it would be to miss the point entirely if these compact ICEpower modules were driven from a conventional and typically rather bulky linear power supply. Then again, Rotel is never afraid to try out

new ideas from time to time, as its revolutionary RSP-1098 AV processor demonstrated just two years ago. Only one question remains – is the RMB-1077 an experiment too far?

LIGHTS OUT

Slim it might be, but the RMB-1077 is never caught slacking. Whether it's grappling with the rebel camp firefight in *Predator* or slicing its way through the classic freeway chase from *The Matrix Reloaded*, this amplifier delivers a thunderous sound with no hint of hardness, stress or strain. Quite the reverse, for when the amplifier has its eyeballs out on stalks then the top-end – the extreme treble – tends to soften slightly rather than

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Like an electronic jigsaw everything inside the RMB-1077's chassis slots neatly into place, including the switch-mode power supply at the front and modular PWM amplifiers located in separate compartments. One of the ICEpower modules – the real heart of the amplifier – is lifted clear for clarity. At the back you can see the inductors (coils) that form part of the final analogue filter network.

become edgy or aggressive. As we demonstrated at the Hi-Fi Show, the RMB-1077 has no problem driving the likes of seven big B&W loudspeakers. So this is one Class D amplifier that's not phased by potentially tough speaker loads and long runs of cable.

You can hear more than a suggestion of the characteristically rich,

While there is some sweetening of attack in the mid and treble, the Rotel is especially capable of sustaining a marvellous sense of atmosphere and anticipation

warm and beguiling sound experienced with Rotel's conventional amplifiers and multichannel AV receivers, but one or two of our panel were not convinced that this RMB-1077 was quite as 'musical' with DVD-A and SACD software.

I don't want to overplay this suggestion, but while there is some sweetening of attack in the mid and treble, the RMB-1077 is especially capable of sustaining a marvellous sense of atmosphere and anticipation. This proved true whether we were wrapped-up

in the narrative of the 2005 SACD multichannel remix of *War of the Worlds* or chilled by the soundtrack as well as eerie silences that punctuate Bruce Willis's haunting movie *The Sixth Sense*.

The latter is pertinent because it demonstrates the subtlety of the RMB-1077, for this is not an AV amplifier that relishes 5.1 channel fireworks

simply to cover its tracks. The ability to develop and maintain a palpable sense of tension is a fundamental role of any sound system that supports a similarly high quality picture.

It's here that the RMB-1077 really scores and pays huge dividends with movies such as *The Ring* and *Donnie Darko* that pivot on their spine-tingling ambience. Of course, the RMB-1077 also has more than enough grunt to underpin the most spectacular of effects. So don't be shy when it comes to that volume control! **■**

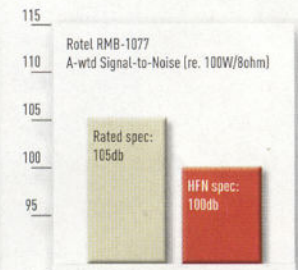
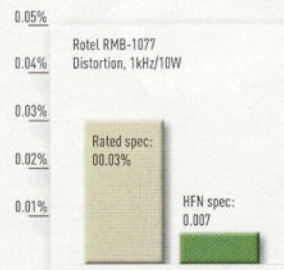
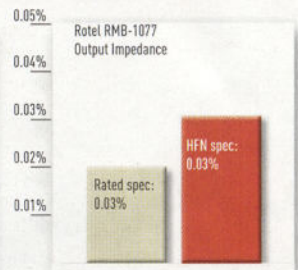
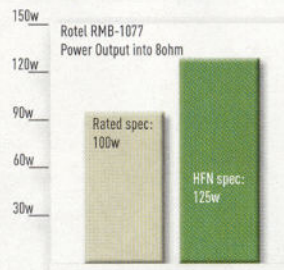
THE REPORT

LAB REPORT

The maximum power output of a Class D amplifier is governed by its largest (or widest) PWM value, whether the signal is continuous or momentary. Hence, while the RMB-1077 can deliver a full 7x125W/8ohm continuously, it also delivers the same 7x125W/8ohm under dynamic conditions. Distortion is typically ~0.01% through the midrange (falling as low as 0.007%) but increases at HF to ~0.16%/20kHz thanks to non-linearities in the output filter network. This very network, however, is at the tail end of B&O's proprietary Multivariable Enhanced Cascade Control (MECC), an inclusive compensation scheme that not only pushes distortion lower than expected but also helps reduce the amplifier's output

impedance and susceptibility to different speaker loads. PWM amplifiers are usually engineered to yield their flattest response into 4ohm loads, and the RMB-1077 is no different in this respect, even if its useable extension out to 70kHz is both highly unusual and deeply impressive. You can see how the RMB-1077 fares into different loads by downloading the QC Suite report from www.milleraudioresearch.com/avtech.

Total Lab score 75%



VERDICT

The efficiency of Class D or PWM amplification lends itself perfectly to multichannel applications where compact enclosures and cool running are otherwise difficult to achieve. Just look at (and feel, for that matter) the size of an Arcam P1000 for example, which is more efficient than most competing multichannel power amps. But PWM amplifiers have rarely, if ever, achieved the audiophile

sound quality demanded by committed home cinema enthusiasts. Until now, and the sensitive implementation of B&O's ICEpower technology by Rotel's 'golden eared' engineers. The RMB-1077 is not only a long-awaited milestone in the evolution of Class D amplifiers, but it's also a pocket-sized power station for the grandest of home theatres. Buy with confidence.