Sweet 'n' Low

REL T1 *(£595)*

REL's T1 got a hearty thumbs up in our 2007 Awards issue, taking the sub-£1000 gong in our Best Subwoofer category. Here we tell you why...

hi-finews OUTSTANDING PRODUCT

Tested by Andy Whittle

Unless you've been living on the moon this past two decades or so, chances are that you'll have heard of REL. Indeed, the REL T1 sub won our best subwoofer up to £1000 award in the November awards issue. Formed in 1991 by Richard Lord, REL produced a number of high-quality subwoofers. These were aimed primarily at the two-channel audio market and proved to be very successful. The arrival of AV fuelled demand, establishing REL Acoustics as market leader in the UK, if not the world.

REL is now owned by Sumiko Audio, manufacturer of high-end phono cartridges and distributor of audio equipment. It makes its components in a factory in Bridgend, Wales, with cabinets also being made in UK. REL goes to great pains to promote the fit, finish and quality of its products, and justifiably so in my opinion. The review sample had an air of quality and style one would not normally associate with, well let's face it, a square box with large woofers in it. Reminiscent of the old Celestion 6000 subwoofer system, the black-domed grille together with piano black rails and cherry cabinet, give the T1 a smart yet purposeful look.

The REL owner's manual is clear and well thought out. Okay, it's not quite *Nigella Express*, but it's all easy enough for me to grasp. REL's preferred method of connection is via the high-level input direct from the main amp's speaker terminals, so this is how I wired it up, using the cable supplied. Neutrik connector at one end, connect to the T1, other end connect to the outputs of the amplifier. There is a low-level phono input for a preamp feed and also an unfiltered LFE input to take advantage of a '.1' channel – not used in this two-channel review.

Additional controls include a volume control for either HI/LO input or LFE input, a variable crossover control, phase switch plus on/off power switch.

PUT LEMMY ON HOLD

REL advices a running-in period of approximately 24 hours for the T1 and requests that users excercise some restraint during this time. Damn! Lemmy will just have to wait. Location, location, location is what it's all about. After about 15 minutes experimentation I found the T1 to perform best when placed directly between my main speakers. I set the level and phase to mid positions, selected a suitable track, tweaked my ears and sat down to listen. Interesting, but too much level. I took the level down one click then replayed the track with the phase up one and then down one. I suggest you repeat this procedure until the presence of the T1 disappears while you can still hear it enhancing the low frequencies. Live with these settings until the sub has a few hours' thunder under its belt and then reset them as things settle down.

Content that I had the T1 properly set up and run-in, I thought I would try the phase switch. The default setting was 0º. I flipped it over to 180º, sat back and wow, were things better! So, as Nigella would say, a quick recap: connections, straightforward; placement, easy; follow the instructions, a bit of leg work but worth it. And don't forget to check the phase.

Hooked up to my resident system of Voyd Valdi/SME 309/ Audio Note IQ1 vinyl front-end, Meridian 508 CD player, Audio Innovations Second Audio monoblocks and Snell Type C speakers, I was ready to roll.

ABOVE: RCA low-level input, .1/LFE input with separate volume control and a Neutrik Speakon high-level input for direct connection to your amplifier

AUDIO FILE

Subwoofer with ULT 10in active driver and 10in passive radiator. Amp rated at 300W into 4ohm

Price: £595

Made by: REL Acoustics Ltd

Telephone: 01656 768 777

Web: www.rel.net

'Extending a system's low-frequency performance can shut in the top and soften the mid. The REL did the opposite'

TIME TO FIRE IT UP!

First up on the platter was Fleetwood Mac's 'Honey Hi' from *Tusk* [Warner Bros, K66088]. The intro kicked in, Mick Fleetwood's drums sounded firm and solid – more so than usual – and Stevie Nicks' vocals had a richness and phrasing that could only be attributed to the REL. Extending the low-frequency performance of a system tends to shut in the top and soften the mid, yet the REL managed to open out the mid and sweeten the top. Most impressive.

It was time to dig out some testing low-frequency material so next up was the title track from Grace Jones' *Nightclubbing* ⇨

THE REL RANGE

REL's T1 sub uses two 10in ULT (Ultra Long Throw) bass units, one forward-facing active, driven by the amplifier and one down-pointing passive, effectively an ABR (Auxiliary Bass Radiator). Low frequency reproduction requires moving a lot of air. To achieve this the active ULT unit has a +8mm/–13mm throw, a 37mm diameter high-temperature Kapton voice coil, twin rear suspension for stability under high power and a dual-layer cone for stiffness and rigidity.

ABOVE: The 10in ULT (Ultra Long Throw) driver is a pulp fibre construction with a polymer dust cap

[Island ILPS 9624]. As usual, the synth startled and Jones' vocals hung in the air, yet this time, towards the end of the track, I hear a driving sub-bass riff from the synth that I have never heard before. This despite running Snell Type Cs with a claimed –3dB bass extension of 30Hz. It only goes to show just how effective the T1 is at filling in that bottom-end corner.

The final bit of vinyl, 'The Joker' from The Steve Miller Band's half-speed mastered *Greatest Hits 1974-78* [Mercury HS 9199 916] saw the T1 pull off the same trick of opening out the mid, adding space, texture and perhaps, most importantly, a new level of emotion to the vocals, taking listening pleasure to new highs.

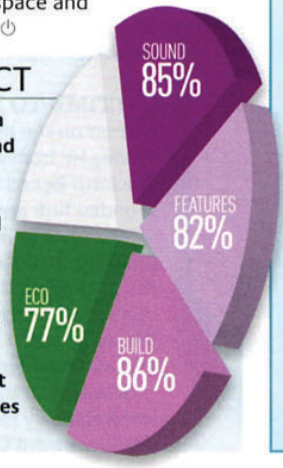
CLASSICAL? IT'S A GAS...

Rightly or wrongly, subs are assumed to be best suited to rock and pop, so how would the T1 perform with classical, and on CD? Spinning up the first movement of Mahler's Symphony No 2 in C minor [Decca 448 922-2], the cellos appeared from a dark background, sounding appropriately sulky, setting the scene as the strings and brass cut in for what proved to be an emotional rollercoaster. The sound was so gripping I had to listen to this more than once!

Switching to something less demanding, in the form of some 14th Century music from 'Lamento di Trisanto' from *Ecco La Primavera* [Decca 436 219-2], the strings and body of the lute hung satisfyingly just left of centre while the drum beat sat behind, possessing fine attack and decay. Meanwhile, on 'Trotto', the skin of the tambourine could almost be seen, while the detail from the small cymbals, in terms of space and decay, was simply exceptional.

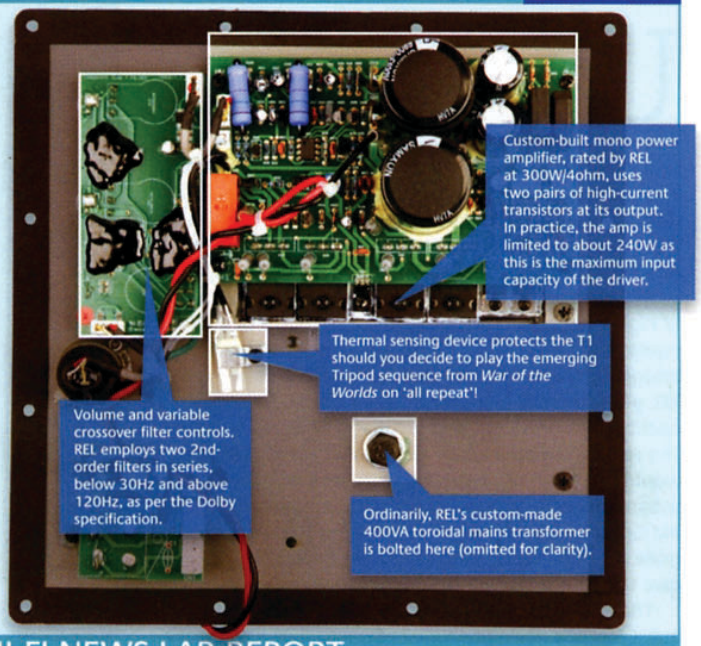
HI-FI NEWS VERDICT

The REL T1 is more than just a bass enhancer – it expands and refines both the mid and top end of the audio spectrum. Correctly setup the enhanced bottom end is just a bonus. If you're running a mid-priced setup and are considering an upgrade, do yourself a favour and check out the REL T1. It offers a one-stop solution that simply and effectively upgrades your whole system in one go.



REL T1
SUBWOOFER / £595

hi-fi news LAB RESULTS



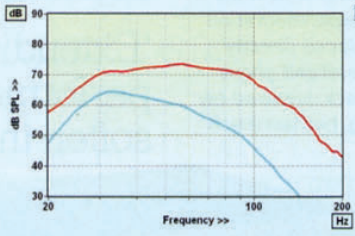
HI-FI NEWS LAB REPORT

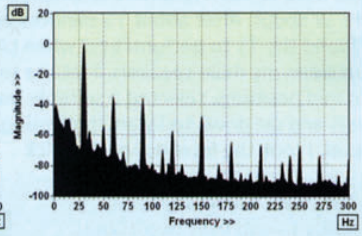
The problem of accommodating a large reflex tube within a compact subwoofer enclosure is sidestepped in the T1 by using an auxiliary bass radiator (ABR) instead, which is effectively a bass driver without the motor components (voice coil and magnet assembly). It behaves in much the same way as a reflex port but takes up less space – and as a side benefit eliminates any port 'chuffing' noises, which can occur when the air flow through a reflex port becomes turbulent.

Like the company's R-505 and B2 before it, the T1's response to crossover adjustments is idiosyncratic. As the near-field frequency response curves show [below, left] – which were measured with the crossover control set to its minimum frequency (30Hz, blue trace) and maximum frequency (120Hz, red trace) – the setting of the crossover control also affects output level, which will make the setup process less straightforward than it should be.

As you'd expect of an ABR system, the high-pass roll-off is fourth-order (24dB per octave), with a corner frequency of about 27Hz. Ultimate low-pass roll-off rate is sixth-order (36dB per octave) but on the 30Hz crossover setting the initial roll-off is more like first-order (6dB per octave) before steepening above 60Hz.

At an output level equivalent to 72dB SPL free-field at 3m (equivalent to 90dB SPL at 3m in-room, assuming an 18dB boundary reinforcement from two adjacent walls and a floor), the driver THD at 30Hz was 2.4%. The spectrum (below, right) shows this as almost equal amplitudes of second and third harmonics, with higher harmonics also present at quite high levels. **KH**





ABOVE LEFT: Nearfield responses with crossover set to 30Hz (blue trace) and 120Hz (red trace); ABOVE RIGHT: Second, third and fifth harmonics tend to dominate the distortion spectrum (90dB SPL, corner position)

HI-FI NEWS SPECIFICATIONS

Maximum output level (30Hz SPL at 3m inc. 18dB boundary reinforcement)	102dB
Max driver excursion (peak-to-peak)	9mm
Max upper bandwidth (–6dB ref 50Hz)	102Hz
ABR resonant frequency	30Hz
LF extension (–6dB ref 30Hz)	24Hz
THD at 30Hz (for 90dB SPL at 3m inc. 18dB boundary reinforcement)	2.4%