

T+A P 3100 HV

With some sensible internal revisions, the German company has made its heavyweight preamplifier even more precise and detailed, without sacrificing any of the music's soul
 Review: **Andrew Everard** Lab: **Paul Miller**

You can tell a lot about a company from the title it takes for itself – from the name of the founder to classical or musical allusions to the equivalent of go-faster stripes, every brand seems to set out its stall in a somewhat different way. German manufacturer T+A elektroakustik is no exception, except here the name – the initials stand for 'Theorie und Anwendung', Theory and Application – is saying 'we're no-nonsense, and led by engineering'. Or, as the company puts it in a brief bio, 'Actually we're scientists...'

Part of the T+A thinking, apart from the 'appliance of science' thing, is to give its products long lifecycles, and build them in a modular manner, allowing facilities to be added to suit the user's needs, and that's the case with the P 3100 HV preamp we have here. It sells for £12,690, and is available in silver or titanium lacquer – or under the HV Individual programme, you can have it in 'many special paint types, such as car finishing lacquers'.

PURE PLEASURES

The P 3100 HV is all-analogue, and a line-only design. It may have separate digital and analogue power supplies, right back to requiring two mains cables, but the 'digital' section is purely there for display and control functions, the audio section being entirely analogue. Meanwhile the modular design seen across the company's range allows the buyer to add a phono section for £1088, in either moving-magnet or moving-coil flavours, while the parametric eq/tone module, designated APM, is included as standard.

At heart, however, the P 3100 HV is very simple, with seven unbalanced inputs on RCAs, four balanced on XLRs, and preamp outs on both RCAs and XLRs, the layout of the rear panel making clear the dual-mono construction of the unit, which uses identical circuitboards for both channels.

RIGHT: Inside the P 3100 HV preamp separate L/R channel analogue tone processor modules sit above the main audio PCB. The HV power supply is concealed below in a shielded chamber

In addition there's a single trigger-in socket for remote switching, an Ethernet port for remote control via the T+A app, and the company's Hlink remote control bus that enables an entire T+A system to be run from a single remote control.

Furthermore, the Ethernet port connects with the company's HVEQ software running on a PC, enabling room correction to be carried out. The headphone socket is powered by its own amplifier, and the only other 'frill' here is that one of the analogue inputs can be set in 'bypass' mode, allowing it to be used with an external surround processor. So this may be purist hi-fi, but there's no reason why it shouldn't be easy to use.

So far I could have been describing the P 3000 HV [*HFN* Sep '14] this preamp replaces, but while the P 3100 HV looks

identical and the 'High Voltage' topology is retained [see PM's boxout, p49], much has changed under the lid.

CLASS ACT

For a start the power supplies have been completely redesigned, using a more powerful, ultra-low-flux density transformer with a greatly reduced electromagnetic field for the analogue stage, designed to diminish current spikes and suppress any residual mains frequency noise. The transformer for the digital control section is also new, more powerful and uses extra electromagnetic shielding, while there's improved filtering in both power supplies.

The main audio circuitry is also upgraded, using new Mundorf capacitors, precision Vishay resistors and even a completely different base material for



the circuitboards, designed for lower dissipation. This isn't a running tweak, despite outward appearances, but a complete redesign, along with the extensive DC-coupling of the preamp in order to remove as many capacitors from the signal path as possible.

Moreover, the volume control is the same superb relay-based design found in the P 3000 HV, giving the preamp superb channel-matching across its range. Anyone used to preamps in which the sound drifts a bit to left or right at very low levels is going to be delighted, as there's none of that to be heard here [see PM's Lab Report, p51].

Above all, the P 3100 HV exudes class, and not just because it's big, solidly built – it weighs as much as some power amps at 28kg – and immaculately finished. The controls have wonderful precision, from that hefty volume control to the reworked front panel touch-buttons, which have been retuned for greater sensitivity, and the whole thing is a delight

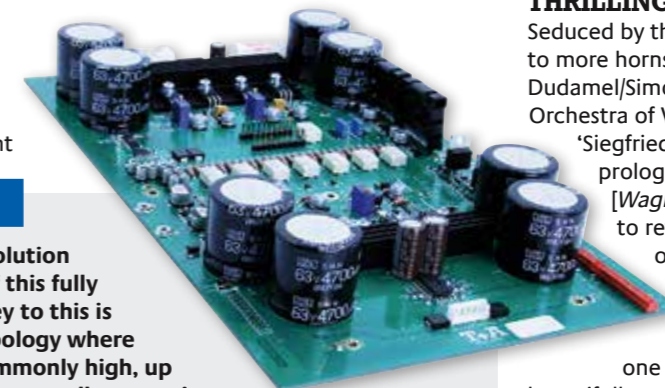
to use. Even the metal-clad remote control [see p51] is a cut above the norm.

TOP BRASS

In the absence of a matching T+A power amp, the P 3100 HV was used in editor PM's listening room with Constellation Inspiration Mono [*HFN* Oct '19] and Bricasti M25 power amps [full review next month], driving the Bowers & Wilkins 800 D3 speakers [*HFN* Oct '16], and with the usual Melco/dCS

Vivaldi One front end [*HFN* Feb '18]. It was immediately apparent that this preamp is very much in the T+A tradition of precision and detail, with an entirely open view of the music that grabs and holds the attention. But there's nothing 'technical',

'The romantic sweep of the playing makes it simply fly by'



PUMP UP THE VOLTAGE

While the P 3100 HV is clearly an evolution of the 3000 chassis, the 'genetics' of this fully discrete design remain unaltered. Key to this is the HV or 'High Voltage' preamp topology where specially selected J-FETs run at uncommonly high, up to 100V, PSU voltages. With only a very small proportion of this 'swing' used in practice, this allows T+A to operate the FETs in Class A over a limited but highly linear portion of their range. The result is distortion that's largely unchanging with either output or frequency [see Lab Report, p51] without employing anything more than the absolute minimum of corrective feedback. Achieving the desired complement of harmonic distortions – typically just 2nd-order – was as important to T+A's engineers as the level of THD itself, although at just 0.00005% through the critical midband, distortion can only be described as vanishingly low. T+A has also rid the P 3100 HV of some interstage coupling capacitors, moving to a DC-coupled design without falling back on DC-servo offset cancellation. Instead, the likelihood of DC drift is countered by precise thermal coupling of the FETs combined with painstaking manual adjustment of all stages. **PM**

ABOVE: Two huge rotaries flank T+A's familiar operational display, governing input and volume as well as navigating through the set-up menu. In this picture, T+A's media player is selected

mechanical or sterile here. After just a few hours of post-lab test warm-up (and aided by temperatures hitting well into the 30s outside), the P 3100 HV was in fine form from the very first track played.

The swing, resolution and all-out brass power on Count Basie's classic 'Corner Pocket', from *Live At The Sands (Before Frank)* [MFSL UDSACD 2113] was suitably attention-grabbing, lush and tinglesome. There was no sense of coloration, but purely a big, warm sound of a band of master-musicians in action, captured wonderfully in this 1966 recording. If this was the warm-up session...

THRILLING STUFF

Seduced by that brass sound, it was on to more horns in the form of the Gustavo Dudamel/Simon Bolivar Symphony Orchestra of Venezuela recording of 'Siegfried's Rhine Journey' from the prologue of *Götterdämmerung* [Wagner; n/a cat no], and a chance to revel in the finest detail in the opening, before unleashing the power with those great brass passages. Thrilling stuff, and really

one to have you turning up that beautifully-weighted volume control. Indeed, it's worth forgoing the remote and using the front-panel control, simply because it feels so good, enhancing the 'user-experience' along with the excellent soundstaging and three-dimensional depth.

That glorious scale of imaging is just as in evidence in the hushed tones and plucked strings of the opening to Vaughan Williams's *Fantasia On A Theme Of Thomas Tallis* [LSO/Simovic in DSD64 from LSO Live LSO0792]. The orchestra is laid before the listener, and the lovely romantic sweep of the playing makes the piece simply fly by. ➔

T+A P 3100 HV



ABOVE: Separate IEC mains inlets for 'analogue' and 'digital' (switching/display) PSUs are fitted alongside six line inputs – four on balanced XLRs, one with a MM/MC phono option – a tape in/out, and balanced and single-ended preamp outputs

Nor is this ability limited to conveying wonderful orchestral music. With the snarly Texas boogie of ZZ Top's 'La Grange' [*Tres Hombres*; Warner Bros download, 192kHz/24-bit], the P 3100 HV just takes the music from the source and passes it through to the power amp in a manner that may be precise and focused, but is also a whole load of fun. The ZZ Top track may be dense and gritty but everything going on is easy to hear – and enjoy.

SUPER VIBRANT

By this point I was trying all kinds of tracks, just to hear this super-vibrant presentation in action. The Barenaked Ladies' live version of 'Brian Wilson' [*Hits From Yesterday & The Day Before*; Rhino/Raisin/ Warner 8122-79757-3] is nothing if not vivid, and I don't think I've ever heard quite as clearly that the audience singalong is word-perfect from the first notes. And neither have I ever experienced this track giving the Aerofoil bass drivers of the 800 D3s such a severe workout,

even at 'sensible' listening levels!

So confident was I by now of the abilities of the whole system, and the preamp at its heart that it was time to re-visit some old favourites. Dire Straits' 'Money For Nothing' [*Brothers In Arms*; Vertigo 9871498] had me thinking I'd never

LEFT: Full system remote governs input, volume, balance, mute and enables navigation of the P 3100 HV's configuration menu



noticed how Pink Floyd-esque is the track's 'I Want My MTV' opening, while Knopfler's signature riff has a truly visceral quality, all strings and guitar body and pick-ups and electronics – you can sense how every note is being created.

Similarly with The Beatles' 'While My Guitar Gently Weeps' [*White Album*; UMC download, 96kHz/24-bit] where it's intriguing to hear how much of the old 'left and right' production style still remained by 1968, but also how clearly every element of the mix is captured.

This was also apparent with what has become a one-riff cliché, Fleetwood Mac's 'The Chain' [*Rumours*; Rhino 96kHz/24-bit download]. OK, so I was listening on the weekend of the 70th anniversary Grand Prix, but still the clattery guitars and tight harmonies of the opening sounded enchanting, as did Mick Fleetwood's pattering then thumping drums under the growl of John McVie's celebrated bass line.

The same effect was in evidence with The Police's 'Spirits In A Material World' [*Every Breath You Take*; A&M 069 493 607-2], on which the tight rhythm section Sting and Copeland formed (at least when not fighting) is just as deliciously obvious. ☺

HI-FI NEWS VERDICT

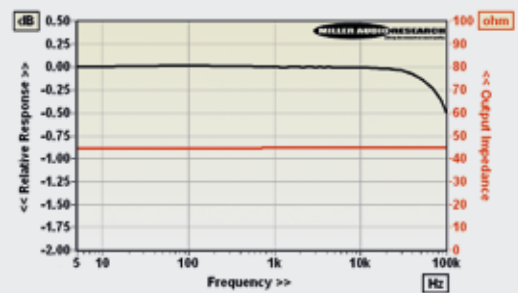
I had an absolute ball with this preamp, combining as it does a remarkably 'straight through' sound with quality throughout, from design to engineering to styling and finish. I might swerve the 'match my car' paint options, but otherwise there's nothing not to like here. It looks – and sounds – a million dollars, and is as much a pleasure to use as it is to listen to and with. Clearly the theory has been well applied here.

Sound Quality: 89%

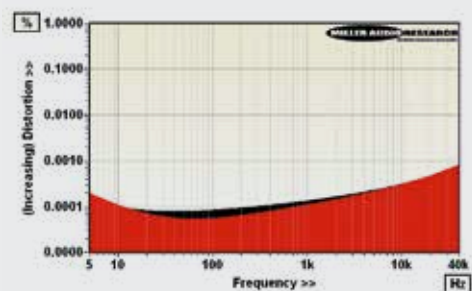


If the technical prowess of T+A's flagship preamplifier was never in doubt [*HFN Sep '14*] then this latest P 3100 HV iteration pushes and polishes the performance still further. Once again, it offers a maximum +14.3dB gain (balanced) with a custom volume control that acts in 1dB steps over a 60dB range with ± 0.1 dB overall accuracy, over an 80dB range with ± 0.2 dB accuracy and 90dB with just ± 0.3 dB variance – this is a very tight tolerance indeed and matched by very few other preamplifiers. Distortion, meanwhile, inches downwards further still from a minuscule 0.00007-0.00025% to 0.00005-0.00024% here [20Hz-20kHz re. 0dBV – see Graph 2, below] while maintaining its wide 102dB A-wtd S/N ratio and very low -99.1dBV (11 μ V) residual noise. Maximum output is a prodigious 17.5V – driving any power amp on the planet – while the input overload is >12V.

Arguably, the most significant change to the design of the 3000/3100 lies in the removal of all but one coupling capacitor [see boxout, p49] while stabilising the DC performance of the preamp without recourse to a servo. So, where the output impedance of the P 3000 HV 'increased' from 45ohm (100Hz-20kHz) to 47ohm at 20Hz, the P 3100 HV's source impedance remains flat to within ± 0.1 dB from 20Hz-100kHz. Moreover while the HF response of both preamps extends to -0.02dB/20kHz the 3000's 'dip' in low frequency response to -0.5dB/1Hz is absent in the P 3100 HV which is flat to below 1Hz [see Graph 1, below]. While this adaption in frequency response will not be audible *per se*, the elimination of DC-blocking caps and absence of a DC servo may well exert some subjective benefit at very high as well as very low frequencies. PM



ABOVE: Output impedance versus frequency (red) and frequency response (black) re. 0dBV, balanced output



ABOVE: Distortion versus extended frequency at 0dBV, balanced line input/output (left, black; right, red)

HI-FI NEWS SPECIFICATIONS

Maximum output/input (<1% THD)	17.5V (balanced)
Output imp. (20Hz-20kHz/100kHz)	44-45ohm / 45ohm
Frequency resp. (20Hz-20kHz/100kHz)	+0.00 to -0.02dB / -0.45dB
Input sensitivity (re. 0dBV)	190mV
Input overload	12.5V (balanced)
A-wtd S/N ratio (re. 0dBV)	101.8dB
Distortion (20Hz-20kHz, 0dBV)	0.00005-0.00024%
Power consumption	49W (analogue PSU) / 5W (dig)
Dimensions (WHD) / Weight	460x170x460mm / 28kg