

# HIDDEN PROPHETS?

Sure, the top dogs of the amplifier world include names such as Accuphase, McIntosh and T+A. But wouldn't that world be poorer without a whole host of other concepts from smaller manufacturers, ready to show us new directions?



Our attention is constantly being sought for products not necessarily in the spotlight of interest: neither at the majority of retailers nor with a large crowd of paying customers. They're easy to overlook, but you do so at your peril – after all variety adds some spice to life, and that's very much the case in the world of hi-fi.

As with loudspeakers, where you can find active designs, electrostatics and omnidirectional radiators, so in the area of amplifiers: there are concepts with exotic tubes, unusual circuits or exquisite hybrid layouts seemingly flaunting all the rules. They may seem to contradict the usual rules, but can nevertheless – integrated into the appropriate

environment – cause established competitors to sweat a lot.

And shiver a bit, as we experienced during this test when the Air Tight, a tube power amplifier usable as an integrated amplifier, transported the music into the room via the Tannoy Turnberry coaxial speakers. Despite a seemingly puny five watts, its magic sound made it clear why there are so many fans of the 300B concept worldwide. AcousticPlan's brand-new „Mantra“ – based on a circuit from 1928!! – also stands out from the crowd in terms of sound and appearance, and the A901 from Progressive Audio, built with very difficult to control „SIC“ transistors, embarrassed our reference amplifiers.

Ready for some adventure in hi-fi's undiscovered country? Read on...

*by Tom Frantzen and Michael Lang*







# BLUE HOUR

AcousticPlan boss Claus Jäckle is a man of conviction – his search for top sound has had him rummaging in the patent archives!

All AcousticPlan devices are hand-made in Kostanz, on the shores of the lake of the same name, and are designed for long service by the careful selection of components. Mastermind Claus Jäckle has no interest in delivering off-the-shelf technology, but instead is attracted by the very special: this is evident in the external form and color of his creations, but even more so from the „inner values“. After all, it’s the combination of fine ingredients and skilled use of them that makes up a top-class amplifier.

As a consequence, the „Mantra“ – the successor of the popular „Sitar“, and object of desire for the company’s fans – is a hybrid integrated amplifier designed to combine the best of the tubes and semiconductors. Two E88CC (6922) tubes glow in the

voltage or preamplifier part, while the impedance-converting current amplifier output stage uses transistors in a sensible and efficiency-oriented manner.

However, Jäckle didn’t resort to a standard circuit: after all he wanted to build the amplifier with no global feedback, and is critical of the fact that most hybrid concepts, in order to minimize the inevitable distortions of the semiconductors without Class A or even the use of local feedback, include the tube voltage amplifier stage in the feedback loop. This shows, even if hardly anyone would admit it, when the amplifier is measured, which is why those manufacturers do it – even if such thinking

renders the effort of the using the tubes in such designs pretty much pointless.

But then Jäckle has no interest in using tubes merely as a marketing feature: “For me,” he says, “the characteristics of the tube must always be audible.” However, this doesn’t take into consideration that some test magazines will only ever be pleased if they “discover” zero percent distortion.

## KEYWORD

### Class A:

If an amplifier operates in Class A mode, its quiescent current is high and it processes the entire signal in single-clocked instead of push-pull mode. This eliminates crossover and switching distortions.

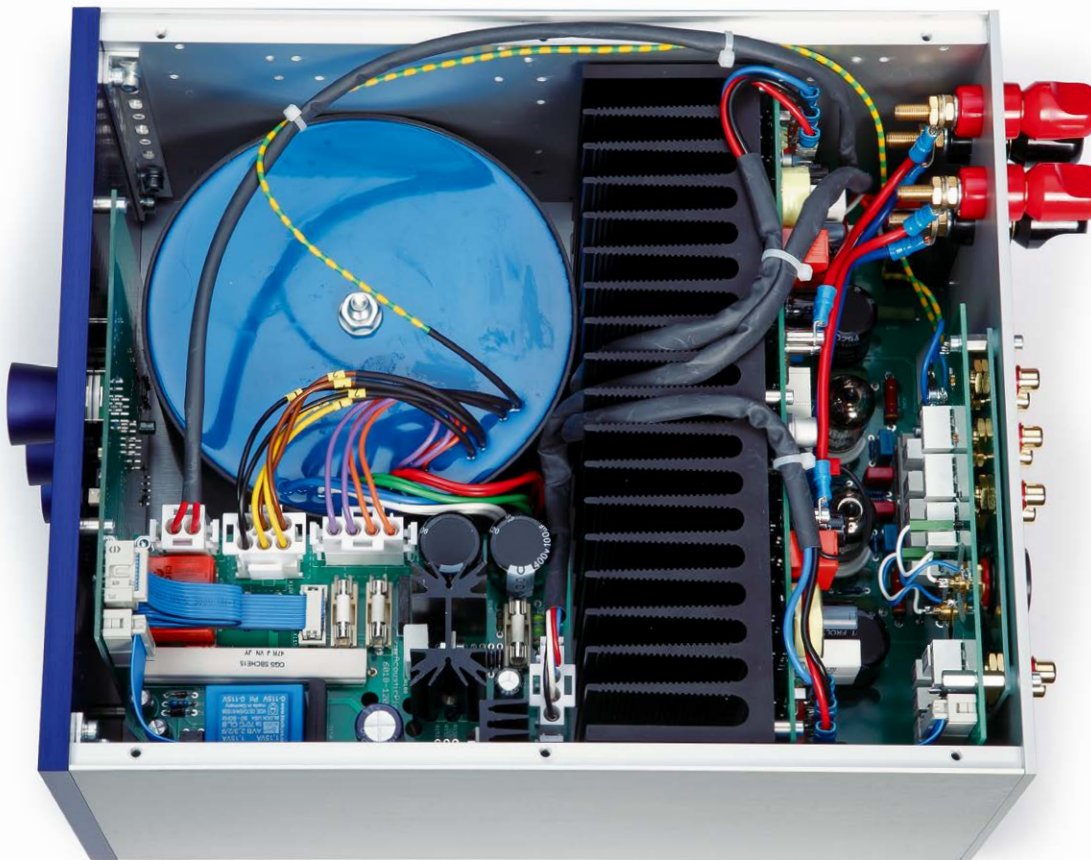
## Feedback instead of feedforward

In order to achieve his desired sound goal, Jäckle opted instead for the feedforward topology of early cinema amplifiers of the 1920s and 1930s, which he uncovered

in his study of older electronic patents and interest in early cinema amplifiers.

The „coupled“ Class AB transistor output stage of the Mantra is based on ideas from Howard Black (1928) and M. J. Hawskford (1981) and was developed over three years of work.

But what exactly is this „coupling“? Well, the output voltage of the emitter



◀ The housing is compact, and well filled, while the heatsink effectively separates the amplifier from the power supply.

sequence circuit is compared with its input signal and the level difference at the input is added in the same phase, which is why positive feedback is also referred to as such. That's in contrast to negative feedback, in which a part of the output signal is inverted and fed back to the input, which is then deducted from the signal in a way that corrects it. If such a control loop is not limited to one amplifier stage at a time, but is applied to the entire amplifier from front to back, it is called overall or global feedback, as opposed to the local feedback applied to just a specific section

According to Jäckle, it is imperative to take into account in the design of the coupling that such an amplifier tends to oscillate and that the comparator stage must be controlled with a low resistance. Then, however, an almost ideal impedance converter is created, where the output and input voltage are identical, allowing this to be coupled with the tube preamplifier without having to forego its sound characteristics – such as the complete spectrum of its typical harmonics –, which would otherwise fall victim to an over-all feedback.

In other words, the tube sound of the preamplifier is completely preserved, and the transistor output stage still works virtually distortion-free, which was the intention of the whole complex undertaking.

### Audiophile detail solutions

This circuit variant defines the AcousticPlan Mantra hybrid amplifier, but there's more to it than that, as is clear from both the materials chosen and the way they're used. The housing is made of individually milled aluminum plates instead of simple sheet metal, the tube section uses point-to-point wiring instead of a PCB, the power transistors have temperature sensors to prevent thermal distortion, and the power supply unit is equipped with ultra-fast rectifier diodes.

Unlike many amplifiers, the Mantra shows no greater distortion in the lower power range than in the medium range, so there is no disadvantage to using it with high-efficiency loudspeakers, for example. And as desired by Jäckle, the circuit achieves a very high damping factor even without the usual feedback – we can

confirm this with our measurement technology – and also by the 'grip' and control this amplifier exerts on loudspeakers.

So... Has this rather unorthodox circuitry solution paid off? Does Claus Jäckle's „acoustic plan“ work out and it pay off in the end? Can the amplifier do this in the STEREO listening room? For all the answers, tune in next week

No, only joking – at the risk of sounding over-excited, the answer is yes, yes, yes, yes. We love it when a plan works, and



◀ The small remote control is more like a silencer, but of course very practical.



even more when the circuit concept of feedforward coupling (also called Feed-forward) is one that has been of interest to me for a long time, even if it has been partly realized by Quad or Sansui.

In the course of the test, we found out that the freshly-manufactured amplifier improved both audibly and measurably, the measured output power increasing slightly and the frequency range extending out to finally reach 70kHz instead of 44kHz. The fact that an already good amplifier mature with a little use is hardly a disadvantage!

The Mantra sounded open, being very agile, lively and relaxed, in the so incredibly important midrange and with well-dosed power and rhythmically springy bass. With Tori Amos's 'Winter', the piano and vocals came to life very naturally and credibly, with expressive details and facets, while Eric Clapton's live performance of „Change the World“ was treated to a soundstage image that was

comparatively compact and not excessively deep, always very controlled and precise, but still emotional and animated.

Listening to music via the Mantra is a lot of fun, and only when we gave it a little too much „throttle“ did it lose something of the control it had displayed with the Tannoys all the way up to already very high levels. A great performance!

The AcousticPlan amplifier can be personalized for the buyer through the choice of options, and phono and/or balanced inputs can be retrofitted, while standard equipment – if one can even speak of such in such a one-off production – includes a direct power stage input, which can be useful for home cinema applications.

In terms of sound, this is a welcome addition to the 7000-Euro class, which is very much the upper house of integrated amplifiers, and lives up to the performance on both visual and technical considerations. Respect, Mr. Jäckle!

*Tom Frantzen*



▲ While Input 1 can optionally be transformed into a phono input, Input 2 can be balanced if desired – for which it is already mechanically prepared.

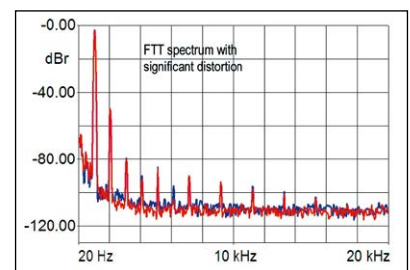
**ACOUSTICPLAN MANTRA**



from 6900 €  
 Dimensions: 26 x18 x37 cm (WxHxD)  
 Warranty: 5 years  
 Contact: AcousticPlan  
 Phone: +49 7531 73562,  
 www.acousticplan.de

This is a hybrid high-level amplifier, with an outstandingly neutral and well-balanced sound quality. A technically interesting coupling circuit without over-all feedback is used in an unusual, attractive design.

**MEASUREMENT RESULTS**



Continuous power (8 Ohm / 40hm)	49 W/88 W
Pulse power 4 Ohm (1kHz)	Switch-off W
Distortion at 50mW/5W/1dB Pmax	0.04 %/0.4 %/0.9 %
Intermodulation. 50mW/5W/1dB Pmax	0.1 %/0.6 %/1.0 %
Signal to noise ratio at 50mW/ 5W	67 dB/87 dB
Damping at 4 Ohm (63Hz/1kHz/14kHz)	50/70/200
Upper cut-off frequency (-3dB/40hm)	44 kHz
Crosstalk Line 1 > Line 2	69 dB
Synchronization error volume at -60dB	0.4 dB
Power consumption Stby/Max (at) <2 W/48 W224 Volt	

**AC phasing on test unit** **LABORATORY COMMENT:** The results for noise, distortion and frequency response, as well as the practical values (e.g. for the volume control), are consistently good; the manufacturer's specifications for the power are not achieved at 1 % distortion, but are at 1.6 %.

**FEATURES**

Remote control, Phono and XLR optional, power amplifier input, earthing terminal, outputs for one pair of speakers

**STEREO-TEST**

SOUND QUALITY	92%
PRICE/PERFORMANCE	
★ ★ ★ ☆ ☆	
<b>VERY GOOD</b>	