

# Pass Labs XP-12+XA30.8

IMPRESSED BY PASS LABS' INT-60 INTEGRATED AMP, KEVIN FISKE DECIDES TO CHECK OUT THE XP-12 AND XA30.8 PRE-/POWER COMBO

*“When wood stoves, diesel cars and incandescent light bulbs have gone forever, the government will undoubtedly turn its attentions on high-end audio. For the time being, however, we can rejoice in the effectiveness of a Pass Labs Class A amplifier as a room heater”*

Having much admired the Pass Labs *Int-60* integrated amplifier (*HIFICRITIC Vol12 No2*), which combined one-box practicality with a refined Class A performance that made it well worth Audio Excellence status, I subsequently asked the UK distributor if I might try a Pass Labs *XA30.8* power amplifier. With a stereo output of nominally 30W/ch, it had more than enough grunt on paper to drive my relatively efficient speakers (and quite a few less efficient designs besides). I left it to Pass Labs to suggest an appropriate pre-amp, and was sent the first *XP-12* to land in the UK (a new model replacing the *XP-10*). (For reference, the other four members of the Class A *.8 Series* are monoblocks rather than stereo amplifiers, delivering 60, 100, 160 and 200W outputs.)

To justify a ‘high-end’ label, an audio system must support the three pillars of tonal, dynamic and timing accuracy. It must also deliver an appropriate degree of energy or room pressurisation. When it doesn’t do these things we get mere sound effects; when it does these things, we get ‘natural’.

For a combined retail price of £12,245 the Pass Labs pair do ‘natural’ to a remarkable degree. In fact they proved so musically satisfying that I bought them, the first solid-state amplifiers that I have owned for more than 13 years. I have been labelled (unfairly but not unkindly) by *HIFICRITIC* Editor Paul Messenger as a tube-head, and (probably fairly) by publisher Martin Colloms as simply wrong-headed, so that’s a turn of events that requires some explanation.

## The Power Amplifier

Before presenting the case for the defence, we need to acknowledge the elephant in the room: the £6,750 Pass Labs *XA30.8* is a genuine no-prisoners Class A amplifier that draws some 400W on idle for its rated 8ohm output of 30W (40V and 20A). When wood stoves, diesel cars and incandescent light bulbs have gone forever, the government will undoubtedly turn its attentions on high-end audio. For the time being, however, we can rejoice in the effectiveness of a Pass Labs Class A amplifier as a room heater!

The output stage uses a startling 40 MOSFETs: 20/ch in push-pull configuration. Each channel’s devices is backed up against thick aluminium slabs, bolted to very substantial heatsinks that run front-to-back each side of the chassis. The input stage uses

JFETs that are run undegenerated, followed by bipolar cascodes and matched common source MOSFETs, with the bias and loading off. The drain connections of the gain amplifying devices are balanced to achieve the desired load-line character and the degree of feedback around the output stage. The voltage gain stage of the amplifier has large heatsinks, to dissipate the heat resulting from the high bias currents chosen to drive the output stage. Notably, no capacitors are used in the signal path, except for the secondary path across the shunt-bias regulators.

The predecessor of the *.8 Series* was the now discontinued *.5 Series*. From the least to the most powerful, all *.5s* used the same front-end circuitry, but the front ends of the *.8 Series* of amplifiers are different: each has individual characteristics aimed at maximising the downstream performance. This means that individual transfer curves and per stage feedback levels are all optimised by bench measurements, followed by extensive home trials by a control group of listeners.

The power supply of the *XA30.8* has a third more storage capacitance than its *.5 Series* predecessor. It also has new CRC (capacitor resistor capacitor) filtering to smooth supply ripple, and additional RF filtering in the AC mains input circuits. I’m not at all convinced this latter feature had any impact in my system, but am prepared to believe Pass Labs when it says RF is a real issue in some houses. The *XA30.8* weighs just shy of around 100lbs, the major contributor being a huge toroidal transformer just behind the front panel. Again compared to its *.5 Series* predecessor, the front end power supply decoupling is improved and achieves ripple now measured in microvolts, contributing a claimed range of greater than 130dB between peak output and average noise floor.

Earlier well regarded Pass Labs amplifiers, including the *.5s*, aimed to balance low distortion, wide bandwidth and high current. The distortion they did produce was described as a balance of low order harmonics, mostly second at low levels and predominantly third at higher power. This formula has been refined in the *XA30.8*, where the high level of single ended Class A bias current in the output stage allows nuanced control of the values and ratios of distortion and the amount of negative feedback chosen.

KEVIN FISKE

### Pre-amplification

The *XP-12* is a single-box line-level preamplifier that retails at £5,495 and draws 30W. It too is a Class A device, and its output is also push-pull. Replacing the *XP-10*, it incorporates three notable design changes. The large toroid is impregnated with epoxy and encapsulated within both an electrostatic and a mu-metal shield, to ensure electrical and mechanical silence. The power supply has lower noise due to revised filtering. And the volume control is now the low noise and distortion type, with one hundred 1dB steps (previously used only in much more costly Pass Labs pre-amps). The gain stage has also changed to a simpler, higher current design that can drive longer interconnects.

I'll not waste space describing the physical attributes of the *XA30.8* and the *XP-12*, as the pictures that accompany this review will tell more than several hundred words.

The £6,750 *XA30.8* embodies the same design approach, build integrity, circuit know-how and component quality as a pair of the £39,500 *XA200.8* monoblocks. I haven't heard the latter, but suspect that the more powerful amplifiers may well trade a degree of sonic sweetness to deliver more grunt. If so, buying a *XA30.8* will therefore benefit us from a bizarre quirk of contemporary capitalism, which places a lower market value on audio quality than output power.

Some reviewers have credited the *XA30.8* with sounding tube-like. In my view that's a suggestion that is both lazy and also unhelpful. Some amplifiers do 'natural' in an exemplary fashion: some use tubes; some use transistors. If we resist the urge to stereotype, two much more useful categories can be identified: good and not good amplifiers.

Following Fiske household practice, I fed the amplifier combo from FM tuner, vinyl and CD sources, and asked it to drive my Audio Note (UK) *AN-E SE Signature* speakers. For part of the time it also drove the very fine ProAc D2 stand-mounts reviewed elsewhere in this *HIFICRITIC*. I used Sootto interconnects and Sogon speaker cables loaned from Audio Note (UK), as well as my own custom silver ribbon cables and the great value *Eclipse C* from SLIC Innovations.

### Sound Quality

The Pass Labs combination is astonishingly informative dynamically, digging deep into the heart of the source signal and presenting the subtlest of fine pressure changes with finesse and, to my ears, more true-to-life veracity than most. This dynamic agility enables it to sound much more powerful than might be expected for 'just' 30W, though



power doesn't necessarily equal dynamic agility, and loudness and dynamics are not the same thing either.

I invited Pass Labs' Desmond Harrington to comment. "The *XA30.8* does 30W Class A into 8ohms, the standing bias of the amp, but it can cover any extra requirement in Class AB by drawing more current out of the wall. This allows it to drive moderately difficult speakers. I just looked at our test files and with one side driven and using 1% as the cut off, the *XA30.8* will put out 85W into 8ohms and 120W into 4ohms – the benefits of a large power supply and a beefy output stage."

Are stand-up bass and piano among the sternest tests of truthfulness at the lower reaches of the audio band? The Pass Labs combination met the challenge with contemptuous ease, sounding organic and true to life. Where so many amplifiers deliver stand-up bass as a steep transient followed by an over-damped decay, the *XP-12/XA30.8* shows that it's a much more complex affair. We get skin and nail on gut string, followed by a 'woomph' as the fundamental and its harmonics develop, supported by the resonances of the wood of the instrument chiming in, then a sweet and lingering decay as the energy dissipates. Piano is similarly arresting *via* the Pass Labs combination, delivering a very satisfactory blend of real-world percussiveness, weight and harmonic complexity.

Taking guests to performances at the acoustically outstanding Anvil concert hall in Basingstoke, I have seen how audiophiles are sometimes shocked at hearing live orchestral music. Compared to their usual audio systems they find live musical transients are gentler, less jagged affairs than they hear at home. Even pizzicato violin has a soft edge to its

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**Manufacturer's Specifications**

<b>XA30.8</b>	
Make	Pass Labs
Type	Class A, Stereo Power Amp
Gain	26dB
Frequency Response	1.5Hz - 100kHz
Power Output (per channel)	30W/8ohms (@ 1%)
Input Impedance (SE/Bal)	50/100kohms
Damping Factor	150
Output Noise	200µV
Current Draw @ Idle	3.3amps
Power Consumption	400W
Size (WxHxD)	48x19x54cms (19x7.5x21.25ins)
Weight	40kg (88lbs)
Price	£6,750

<b>XP-12</b>	
Make	Pass Labs
Type	Class A, Stereo Pre-Amp
Power consumption	30W
Gain	9.3dB Balanced
Frequency response	10Hz – 20kHz ±0.05dB
HF rolloff	-1dB @ 100kHz
Crosstalk	better than 100dB
Residual Noise	15uV @ 10 – 30kHz
THD	< 0.001 @ 1V, 1kHz
Size (WxHxD)	43x10x32cms (17x4x12.5ins)
Weight	9kg (20lbs)
Price	£5,495

dynamic bite. Of course, that's partly due to the way a point source radiates energy into a concert hall; close-miked, the effect would be different. Some amplifiers deliver a homogenous sound that lurches from one sharp event to another, which can initially sound exciting and 'fast' but is an artifice. In contrast, the Pass Labs combo doesn't impose itself on the music, and preserves the essential subtleties of the way transients develop. Sounds are fast when they should be, slow when they should be, giving a natural flow.

The Pass Labs combination creates a gratifying and convincing illusion of real-life when working with the recorded human voice, giving an almost tactile 3D quality to singing heads that I have not heard many other amplifiers achieve. This is partly a result of vivid separation and a deeply layered soundstage, but also because it transcribes micro-dynamics faithfully. The qualities I have highlighted are sometimes ascribed to tubes, so some readers might shout: "Ha! So it does sound like a tube amplifier!" I'll merely repeat 'no'. The *XP-12* and *XA30.8* demonstrate that natural sound is technology agnostic. This is simply what happens when an amplifier is well designed and intelligently voiced.

Into my *AN-Es*, which have a sensitivity of c97dB/W when in room corners as designed, the *XA30.8* was able to deliver much more unstressed grunt and spls into a 21x12.5ft space than my hearing finds comfortable. The *XA30.8* and *XP-12* are very quiet, and I would not anticipate any intrusive background noise, even with more efficient speakers such as horns. The 88.5dB ProAc *D2s* were also driven with apparent headroom in hand by the Pass Labs combo.

The *XA30.8's* central meter displays current output. When it flickers beyond 12 o'clock the amp is moving into Class AB territory. I only saw it beyond midday once (upon returning to the house to find that a visiting nephew had hijacked the system and was playing reggae at utterly insane volumes).

The *AN-Es* were compressing like mad, but the Pass Labs was not clipping. (It says something about the design of both components that the *Es* are unscathed, and the Pass Labs is fine.)

Alongside the concept of PRaT (Pace, Rhythm and Timing), live natural music also features dynamic contrasts, tonal complexity, and room pressurisation. Natural timing is only possible if dynamic agility and contrast are present too, otherwise we will not hear the essential micro-information at the beginning and end of each event, and will be misled about the relationship between time and sound, and what the performer intended.

My wife and I had had lunch at a household equipped with an audio system said to deliver PRaT in spades. Later, driving homeward in our humble Skoda, we were listening to some piano jazz (the same disc that we had played earlier at the house) on the car's standard audio fitment. I was scat-singing along, filled with joy at the way the pianist was bending time, swinging behind the beat, nailing it, and occasionally driving ahead of it, all to create and relieve tension. My wife latched on to what he was doing, and together we sang our way eastwards. Back home later that evening I played the same disc for the third time that day. Timing details that had been largely absent at lunch, but shown much better in the car, were now revealed in all their complexity through the Pass Labs combination.

**Conclusions**

There is something utterly beguiling about amplification that is this well executed, which I think has to do with the natural rightness of how it sounds, not just to obsessive audiophiles, but to people in general. When dynamics are virtually true to life, tonality is a pretty fair facsimile of natural sound, the transients versus time-base relationship is preserved, and sound power is delivered to the room in a natural way, we all exhibit an instinctual human response. Listening, comprehension and appreciation takes no mental effort, and we don't need to suspend disbelief or take a course in 'how to listen'. We are simply entertained and satisfied, which of course is how things ought to be.

I am not suggesting that the more powerful and costly .8 Series amplifiers cannot do this, or are to be avoided. I haven't heard them, and if you own speakers that take a lot of driving then the additional current might be helpful. However, if you aspire to achieving some of the most natural sounds I have experienced, and like me are agnostic about how it is achieved, then you may want to audition an *XA30.8*, an *XP-12*, and some efficient speakers. It's just a suggestion...