

*It is 31 steps from PAS-01
to the Passion, a passive
line controller that could be
the ultimate volume control*

by MARTIN COLLOMS



PASSIONATE AFFAIR

The absolute attenuation value depends on the exact source and load impedances; but in this classic short path 'L' pad attenuator design the overall relationship between settings holds up well for a reasonable variation of source and load

Nothing if not perfectionists, the designers at Audio Synthesis have improved further on the concept of their original stepped-attenuator passive controller. Earlier reviews covered PAS-02 [Trevor Butler, Sept '91] and I tried both switched and potentiometer-based versions of PAS-02 in a review of the Audio Synthesis digital-to-analogue converters, including the excellent Ultra Analog-based DSM-M [March '92. Ben Duncan's original constructional article describing PAS-01 appeared in *HFN/RR*, August '88, while a DIY attenuator with 138 steps was described under the title 'Your level best' in May '91].

Now, after much experimentation, PAS-01 has become Passion. In keeping with the romantic name, the case has acquired a highly polished fascia with subtly softened and rounded edges. The overall look remains a little 'industrial' but it is highly finished and most professional looking. And so it should be, considering that the unit costs £405 in kit form or £581 ready built. These prices include the top grade WBT phono sockets.

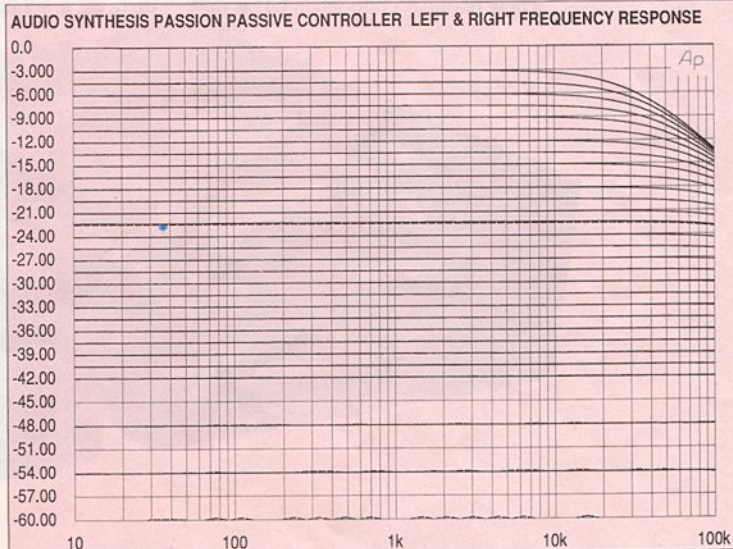
The Passion is a passive line level controller. It has no gain and can only attenuate an audio signal, doing so with as little deterioration as possible. Its primary use is to provide a non-invasive volume control for a high quality digital source. It is suitable for use with CD players or

decoders which have a low or moderate source impedance, say under 600 ohms, and a standard or higher output level, that is, 2V rms or more. To be fully effective, the matching power amplifiers should have an input sensitivity for full power of better than a volt. 0.7V is preferred, with an input impedance greater than 25k-ohm (preferably 150k-ohm).

The Passion is so precisely specified that its rear panel is engineered with the following statement: 'Calibrated attenuation supplied for a 25 ohm source and a 50 k-ohm load. To avoid HF rolloff keep o/p leads <2m or 300pF and minimise use of 3 to

9dB steps'. This cryptic and complex message notes the ideal source and load capacitance (although in practice these are not so critical) as well as recommending the output capacitance be moderate, 300pF or less. Furthermore, it says that the performance at the highest switch positions, that is, minimal attenuation, is not as good due to the rising feed-through impedance.

I found that the 31-step silver contact switch gave a positive feel, with clear detents. The uppermost position gives a coarse 3dB interval to -3dB down, but after this a nice compromise between dynamic range



PERFECTION IS A PASSION



"...PASSION took over the reference position... substantially ahead of the best active line pre-amps. PASSION's switched, discrete attenuator is clearly more accurate, more dynamic and transparent than the pot alternative. When audio products are as good as this, there is little more to say, save to endorse them with a firm recommendation... it could well be the best volume control you will ever buy!"

Review of PASSION - HiFi News April '93
Full details on request.

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NOBODY DOES IT BETTER...



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47◀ and resolution has been achieved. These steps are 0.5dB all the way down to -42dB, achieved without the dual controls of the earlier (138-step) design. Below -42dB the steps are -48, -54, -60dB, which is fair enough.

The absolute attenuation value depends on the exact source and load impedances; but in this classic short path 'L' pad attenuator design, the overall relationship between settings holds up well for a reasonable variation of source and load. The lead resistor of the 'L' is a costly Vishay bulk foil resistor of excellent sound quality. Selected high performance Holco 0.5W metal films are used for the shunt path, this method allowing the signal path to remain free of switch contacts.

For a 300pF load Audio Synthesis quotes (and verifies) a -3dB point better than 39kHz at the worst -3dB setting, where the maximum output resistance is 13k5. This figure improves progressively at lower settings. For example, at step 6, 9dB attenuation, the output resistance is reduced to 6k-ohm and the -3dB point reaches out to 89kHz with a negligible -0.1dB demand at 13.5kHz. The unit is DC coupled.

Channel matching is held within $\pm 0.05\text{dB}$ at all settings. A particular feature is the input selector design which allows for 'direct' and/or tape signal feedthrough, plus auxiliary, CD and tuner. This unit also switches ground lines as well as the signal, so that there is no ground line interference from other audio components connected but which are not specifically selected. The direct setting also means that there are no contacts in the signal path at all. The interior is wired with oxygen free silver wire, single strand, and with a Teflon dielectric.

SOUND QUALITY

With this unit, hearing is believing. Auditioned as part of a top class system, silver wired, the Passion took over the reference position. The excellent neutrality and transparency were unmistakable, a substantial advance over both its predecessors and the competition. Given that this is a passive controller and that good compatibility and matching should be present, an excellent score of 35 marks was achieved when my usual subjective scoring system was applied. This was substantially ahead of the best active line pre-amps.

AMPLIFIERS

Fed the output from my reference Accuphase DP70-V CD player (whose own digital attenuator also provided the possibility of relatively non-invasive level matching), the Passion showed itself to be much closer to audible invisibility than had previously been achieved. The Passion beat my Penny & Giles potentiometer, despite the hard-wired advantage of this special, in which the phono sockets are soldered directly to the terminals of the potentiometer. And, in practical terms, the Passion has the advantage of providing an input selector.

The higher load impedance of the Passion (15k-ohm as compared with the 10k-ohm of the P&G pot) was probably a help to signal sources while the Passion's switched, discrete attenuator is clearly more accurate and more dynamic and transparent than the pot alternative. Stereo focus, depth and width were all preserved very well. When audio products are as good as this, there is little more to say, save to endorse them with a firm recommendation. If it suits your system (it worked very well with my bi-amped Meridian 605 monoblocks) it could well be the best volume control you will ever buy! ♪

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