

OCTOBER 2005



music first audio

PASSIVE MAGNETIC PREAMPLIFIER

Reviewer: Srajan Ebaen

Source: Zanden Audio Model 2000P/5000S; Opera Audio Consonance CDP 5.0 Droplet

Preamp/Integrated: ModWright SWL 9.0SE; *AudioZone PRE-T1* [on review]; *Music First Audio* [on review]

Amp: 2 x Audiosector Patek SE run one channel each, the other shorted out

Speakers: Zu Cable Definition Mk 1.5

Cables: Zanden Audio proprietary I²S cable, Stealth Audio Indra (x2), Zu Cable Ibis, Zu Cable Birth on Definitions; Crystal Cable Reference power cords; ZCable Hurricane power cords on both conditioners

Stands: 1 x Grand Prix Audio Monaco four-tier

Powerline conditioning: 2 x Walker Audio Velocitor S

Sundry accessories: GPA Formula Carbon/Kevlar shelf for transport; GPA Apex footers underneath stand, DAC and amp; Walker Audio SST on all connections; Walker Audio Vivid CD cleaner; Furutech RD-2 CD demagnetizer; WorldPower cryo'd Hubbell wall sockets

Room size: 30' w x 18' d x 10' h [sloping ceiling] in long-wall setup in one half, with open adjoining living room for a total of ca.1000 squ.ft floor plan

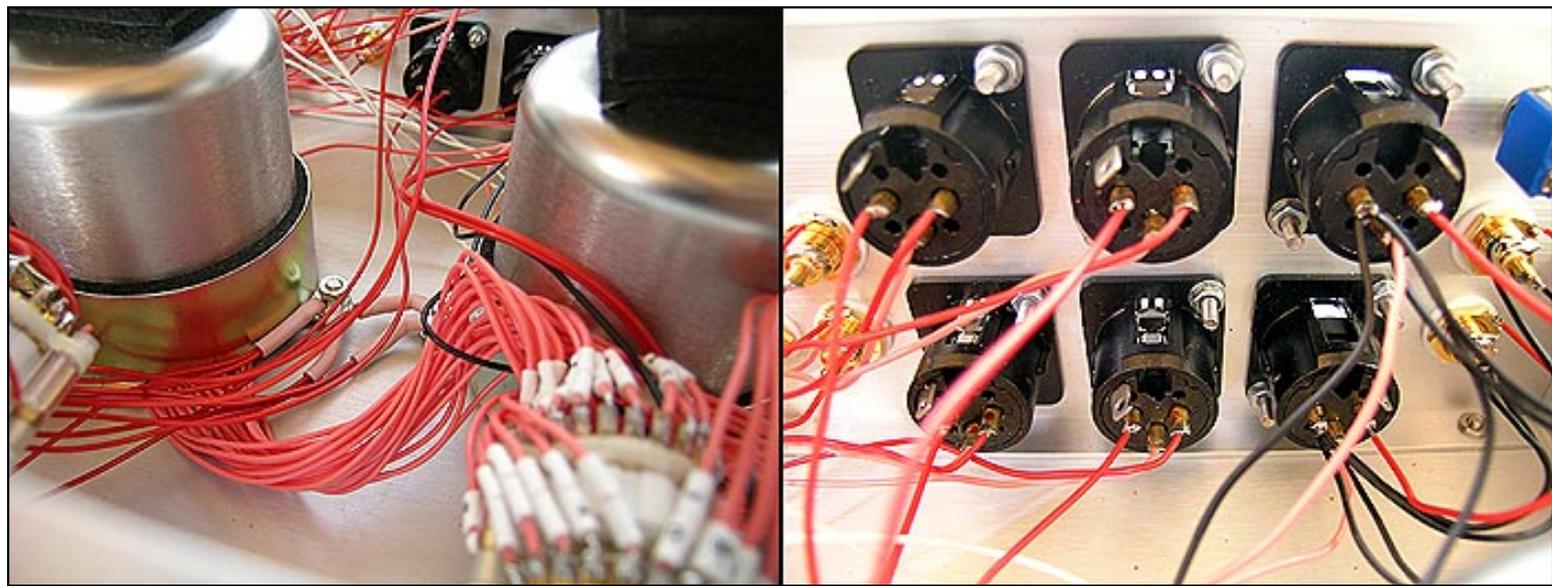
Review Component Retail: \$2,495 introductory offer for US market



What the hey is a passive aggressive preamp anyways? Er, passive *magnetic*? Passive of course means no active circuitry, i.e. no connection to AC wall power or batteries. In short, no power supply. Passive. Magnetic refers to the use of multi-tapped attenuation transformers instead of resistive volume control devices. The most well-known in this breed of transformers are from Stevens & Billington Ltd. And that's precisely what makes today's unit tick: two 80% nickel Permalloy core S&B balanced attenuation transformers. Housed inside Mu-metal canisters, they're strapped to a 24-position stereo ELMA switch for volume and another 6-position equivalent for source selection.

Two of the inputs are balanced (as is one of the two selectable outputs). A ground lift/output selector toggle and 6dB passive gain switch round out the feature set. Being a UK product, the British press naturally got tipped off to the PMP well ahead of audiophiles in the States. And what a harmonious chorus line they've formed. There's an "Editor's Choice 2004" and "Best Preamp of 2005" with HiFi News and major raves by HiFi World and HiFi Choice.

The English aren't the only ones hip to the concept. Numerous US and Canadian manufacturers have embraced TVCs - or transformer volume controls. AudioZone, AVTAC, Bent Audio, DIYHiFi and Sonic Euphoria come to mind. From Switzerland hails the capo di capi of the genre, Audio Consulting's Silver Rock. But this flavor of passives doesn't exactly suffer queues. Neither do conventional passives for that matter. As two of the commercially most successful ones in recent memory, the McCormack and First Sound units have already faded into the mustier pages of the HiFi annals.



Here's the \$64,000 question: Are passives *really* passive as in 'flawlessly neutral' like the purest of diamonds? Or are they subtly *subtractive*? For 'neutral', common sense can predict various copasetic scenarios in audio systems when source, amplification and speakers form a perfect triumvirate. All that's required then is naked functionality: source selection and volume control via signal reduction only. Anything even a smidgen more would be already considered detractive. The concept of passives -- sonically invisible functionality -- then fits like a bespoke deerskin glove. But what if such devices really *diminished* the signal somehow instead? Ultimate usefulness would be rendered dubious. After all, why throw away portions of the signal no matter how minuscule? Why thin out the sound or curtail dynamics?

Unlike resistive passives which suffer impedance mismatches and concomitant frequency response aberrations depending on setting and cable load, Stevens & Billington claim 5Hz -100kHz bandwidth *regardless of selected attenuation* for their custom transformers. Passive without penalties. That's how supporters would view this miracle of fat-free functionality. Detractors meanwhile feel compelled to point at a predictable loss of body, drive and tone which -- in their opinion and experience at least -- can *only* be had from active circuits. Rather than neutral, they believe passives are really *active* in how they steal from dynamics and tone. Confused? It's the audiophile law of relativity.

The only way to solve that dilemma? The ol' bypass test: run a source with integral volume control amp direct, then insert our passive and report on the differences - if any. As luck would have it, I have one such source in my arsenal. The Consonance Droplet CDP 5.0 sports a butch valve-powered output stage with a digitally actuated analog volume control accessible by remote only. This would be the decisive test. Utter neutrality whereby insertion of the PMP wouldn't betray its presence by even a whispered peep? *Better* performance in any particular parameter to suggest active benefits without active circuitry? Or any indications of subtractive effects as would please the naysayers?



On one possible side of the fence, we thus have mean but lean, transparent but sparse, open but cold, honest but sterile - the bad and boring stuff. On the other side, we have unmitigated or even accelerated speed; heightened resolution via lowered noise floors (passive are quiet, period); reputedly improved dynamics at low volume due to zero signal losses (which are said to plague regular volume pots and ladder-type attenuators that throw away unwanted signal voltage as heat); and undiluted purity that doesn't morph and manipulate the signal. Which way do we turn, Josephine?

Time to query Harry O'Sullivan of S&B for more background on their concept and execution. It turns out that Music First Audio Limited is a wholly owned subsidiary of Stevens & Billington Limited which then manufactures the Passive Magnetic Preamplifier under the Music First Audio brand name. The transformers in the MFA unit are very similar to those made available to other companies for OEM purposes yet "subtle but definite differences in the way these transformers are wound" remain. Hey, Dynaudio and JMLabs too reserve their finest drive units for internal use. "More importantly, we regard the way in which we use these transformers as critical. We manufacture everything by hand and take a great deal of care and pride in the job we do. We make sure that each solder joint and connection is as close to perfect as possible. While this approach is very labor-intensive, we feel that 'every little bit helps' to get the most out of the components we use. We only use the best quality parts available at this price and we rigorously test and listen to every preamp we make."

This passive preamp is fully transformer-balanced input to output. Conversion from one format to the other is possible in both directions (pin 2 is hot). Internal hookup wiring is silver, the standard transformer windings are copper but silver versions are available. Ditto for highly polished silver-finish knobs for those who don't fancy the gold ones. Now for the tech stuff - such as the role of capacitance in the interconnect cables as determined by length. Which really depends on the *source's* cojones to drive. "A definitive answer is that any source component should be able to drive the IHF Standard Load of 10K/1nF (some pre 1980's tube gear, old tuners and tape decks may be unable to operate into the IHF load), in which case the permitted load into the passive preamp is also the IHF load. As normal interconnects tend to be in the region of 100pf/m, up to 10m of average cable (foil types excepted) will be fine under almost all condition. Cables with above average capacitance *may* still work perfectly fine in 10m lengths but really should be proportionally shorter. Cables with below average capacitance can be proportionally longer.

If the source has a drive capacity better than what is required to handle the IHF test load (some tube equipment may have problems there but all solid-state gear should be able to drive much more severe loads than the IHF test load), the cable capacitance and thus cable length can be increased. With most modern transistor sources, 30m or longer runs of *average* interconnects will be no issue. We have yet to come across a situation where cable length has been a problem."



"In fact, a transformer simply takes the drive ability of the source and passes it through with either a slight decrease over the source (when turned all the way up) or a notable *improvement* when any significant attenuation level is used. By comparison, traditional passive preamplifiers impose large resistance values between source and cable, with additional resistance shunted to ground to accomplish attenuation. This severely limits their ability to drive cable capacitance loads. Worse, the source must provide the power to drive the volume control's resistance as it gets converted to heat.

Transformer-based attenuation with its electromagnetic coupling does not rely on the addition of resistance. It works by changes in primary/secondary ratios. The transformer itself has very high impedance across the audio band. Accordingly, very little of the source's output power is lost and only the very low winding resistance appears in series with the source prior to the preamplifier's output. Thus the source only needs to drive the load and cables connecting to and from the passive preamplifier. However, as the Passive Magnetic Preamplifier's attenuation is increased (preamplifiers in most systems end up cutting the signal by 20dB or more at all times), the output impedance rapidly falls to very low values. This in turn translates into much improved ability to drive a load or cable.

Here are practical examples. With the volume control set below the 3:00 o'clock position, a source with around a 1K Z-out will result in output impedance below 300 ohms. This amounts to a *threefold* improvement in output impedance. With further increased attenuation, the output impedance falls progressively. If attenuation is set to -20dB or 12:00 (rather more common in many systems), the output impedance becomes around 36 ohms for a 1K source - an improvement of nearly *thirty times*.

The use of transformers not only dramatically improves on the ability of the passive preamplifier to drive cables (and loads) compared to traditional designs, in most systems the use of transformers will actually improve materially on the ability of the source to drive its cables as well. It is the latter part which explains the experiences of some of our customers who found the use of the Passive Magnetic Preamplifier to be a substantial improvement over using no preamp at all."

Music First Audio



Passive Magnetic Pre amplifier

Prelude: With two AudioZone TVCs already in house -- the PRE-T1 in copper and silver transformer guise -- I've come to the conclusion that such impedance-matching passives can be the ultimate solution for tube amp lovers. The reason is simple. Tube amps -- especially low-power ones -- live and die on a copasetic match with just the right speakers (think lack of damping factor, speaker sensitivity and load behavior). Premium examples of such matching are like finely aged wines. They should only be preceded by pure table water so as to not dilute or otherwise alter the carefully wrought sonic 'in vino veritas' flavor. That's where TVCs shine by definition *and* personal experience. They let you hear your amplifier without any shadings. Another benefit is the passives' lack of gain. It removes a very real zone of potential noise, something valved components in general need help with. You could be surprised to discover that your cherished 2A3, 45, PX25 or 300B amp is far quieter than you thought once that active preamp with its redundant gain makes way for a passive.



Needless to say, there are no hard and fast rules. However, if your source can drive your tube amp to full output for volumes in excess of any practical use? Now TVC passives could be the ultimate solution. Of course their employ places the full brunt of the sonic burden squarely on the amplifier. Alas, when things are just so, that's *exactly* all you want. Now why did I leave out solid-state amps? To practice prejudice? Not really. When it comes to *tone*, most transistor amps need help one way or the other. For that, they rely on the right preamp to inject a bit of color. And color is *not* why anyone would go passive. Or is it?

Where the Music First piece goes beyond the Canadian PRE-T1 is connectivity - more inputs *and* a fully balanced in'n'out path. The latter could be the deal maker in favor of the British pre even if it otherwise sounded identical to the Canadian's S&B impenetation. The AudioZone enclosure is more substantial and its cosmetics more sculpted and upscale. The Music First Audio box adds functionality for a \$500 'surcharge'. Either way, both pieces vie for the very same customer, with the British piece whispering promises of secretive parts tweaks or tighter tolerances. Audiopax, Harbeth and Lavardin importer Walter Swanbon of Fidelis AV in New Hampshire just became US attaché in all matters Music First. Because the Euro's ascendancy continues to strain the good will of Yankee trade relations, Mr. Swanbon has kindly decided to overlook actual math. He extends a friendly introductory pricing offer for this fresh import until his accountant forbids it.



"World's best preamp". That and similar conclusions were drawn by our British colleagues when confronted by this passive *magnetism*. In a hobby where components interact in unpredictable ways, such definitive statements are, of course, bound to be challenged sooner than later. Still, this particular statement does point at a very *definitive* effect. Insertion of this preamp removes the kind of drag walking through water inflicts on a walker. Or call it that some pipes get unclogged and flushed to let the music signal burst forth unrestrained. That un-veiled transparency is, of course, the very calling card of passives. Alas, detractors insist that this declogging or stripping-away-of-stuff action does more than just remove obstructions. They claim that some of the stuff is thrown-away music. They claim that dynamics get stunted, tone bleached and energy diluted.

Where *this* passive is concerned, I beg to differ. During my review of AudioZone's PRE-T1, I deliberately switched sources to reach for one with inbuilt volume control: Opera Audio's Consonance CDP 5.0, the so-called Droplet CD player. Comparing signal paths of amp-direct versus passive-in-the-loop, it became clear that not only do these attenuation transformers *not* subtract any part of the signal, they seem to subtly benefit high-frequency extension and low-volume fullness while producing the faintest sheen of textural sweetness.

The way I see it -- and shy of the kind of \$10K+ statement preamps that may be exceptions -- you'll have to face a trade-off. On one side are ultimate transparency, resolution of the most minute of ghost details and lower-than-usual volumes that still satisfy. On the other side of this ledger (active preamps) are enhanced tone and density but a reduction of the other qualities. There are those who value truth *über alles*. After hearing the Music First piece, they'd have a hard-to-impossible time going back. Then there are those who focus on emotional persuasiveness and deliberately voice or enhance their sonics to produce the desired subjective reaction. This often includes visual elements which, after all, are absent on musical software. Stereo per se recreates a semblance of a three-dimensional sound field with clear localization cues. Those place various performers and acoustic events at various apparent distances to the listener.

What some call spatial *effects* others call suspension of disbelief and crave - extreme focus, elongated depth, lateral expansion. While the lack of intrusion has the Passive Magnetic reveal the *recorded* ambient cues, it won't improvise on them to make them larger, deeper or more holographic than that. Strategically employed, tubes can do some of that as can so-called powerline conditioners (Audio Magic's come to mind which are optimized to recreate absolutely vast soundstages).

Other listeners thrive on image *density* to oppose the immaterial see-thru quality of sonic phantom images. Naturally, as density or corporeality increase, see-thru transparency has to decrease. Most good active preamps will add body, arguably often at the expense of apparent speed or jump factor. Image outlines can be emphasized, transients exaggerated, dynamics -- often not across the board but limited to a particular band -- subjectively accelerated. This is where every listener voices with component selection, resonance redistribution or attenuation

and accessory tweaks.



The question then poses itself. Doesn't successful tailoring mean that one must first start with the undiluted and unprocessed truth *before* one begins to tweak and shift, tune and mold? How else to know how much (of what's actually there as musical substance) is worth trading for something else? A passive preamp of the Music First's caliber can be quite the wake up call. You might realize that there was significantly more "to start out with" than you had accounted for. And you may find that some of your subsequent enhancements were really substitutes. Once that which they substituted for -- either directly or indirectly -- has been re-added (or wasn't removed in the first place), most or all of the substitutes may be viewed as redundant and somewhat fake.

All this by way of saying that data lost in any stage is lost for good and that amplifying devices pass on errors "blown up in size". Whether the price of active preamp enhancements is really worth it -- obscuration of fine detail, possible deceleration of transients -- becomes a relevant question only when you can hear, by direct comparison and perhaps for the first time, how much your current darling preamp removes to be pleasant or pretty. Does the Passive Magnetic act additive in *any* way? If I knew where neutral was, I'd tell you. Since I don't, I can only talk in relative terms vis-à-vis my ModWright SWL 9.0SE valved preamp. At very low levels of the sort you'd use when your mate was asleep thru an open archway, the ModWright is either subtractive -- by homogenizing earlier -- or the Music First is additive by letting you hear more information at the same level. The valves then congeal and thicken and the musical water spout closes up.

At regular volumes, the ModWright becomes more holographic (i.e. the soundstage layers appear more sculpted) but the Music First extends farther into the distance. The ModWright packs more meat and dynamic micro peaks seem louder but the Passive better separates out tiny events like fingers-on-strings sounds, woodwind key clicks, piano damper pedal action and slight shifts in relative microphone perspectives.

The 5687 valves enhance tone and texture by a small but welcome degree, the Magnetic preamp is a bit drier yet never brittle or chalky. Things get interesting in combination. The superlative 45-based Yamamoto SoundCraft A-08S, as I described in its review, is like a Class D switch-mode amp with a 6SN7 stuck into the circuit - ultra-resolved, exceptionally quiet and with perfectly balanced tone. Any thickening of *that* signal (or interface) merely induces hooding or veiling. It makes the Music First the only suitable companion.



Into my AudioSector Patek SEs, the same passive preamp does absolutely *nothing* to tame the explosive rise times of the opamps. As a result, there are incidents of pungent sharpness or bite which ask to be mellowed out by just a skoch on energetic recordings. Enter the ModWright with its subtle valve action. As you can see, it's all a balancing act and precisely the reason why I can't issue a categorical blanket endorsement for this British champ. I can easily envision amplifier mates that wouldn't cotton completely to its brand of honesty. Though 'brutal' is not at all a word I'd use to describe it. That's because I don't hear any exaggeration or hyping. Rather, I hear *a modest infusion of sweetness*. Truly. Instead of bland and sterile, this passive leaves the bull's eye center of neutrality just enough to actually be preferable even in scenarios where it's a patently redundant component (such as with attenuator-fitted sources).

Coming from valves, you may miss the bloom. Coming from transistors, you may miss the zing. Coming from the Passive Magnetic, you'll view the same bloom as a bit cloying and the same zing as unnaturally sharp and hyped. It all depends. Where do you take your stand? In which direction are you looking? That's about all I can tell you about this Stevens & Billington piece. Neutrality thrives on brevity.



Now, 2,500 clams are a bundle alright for a few switches, a handful of connectors and two tiny transformers. But when you consider that an equivalently priced active preamp will be nearly impossible to find that offers the same balance of virtues, the pain suddenly becomes a whole lot more palatable. In fact, moonie Les Turoczi just had an encounter of the magnetic kind. Let's just say that his \$9,000 Audio Research Reference preamp into the first-class McCormack DNA-500 was handily upstaged. Again, there's no ultimate solution for anything audio. Still, the evidence is mounting that this demure little box from Great Britain regularly brawls it out with the big dogs and comes out the winner.

The fully balanced feed allows signal conversion pre or post transformers so you can enter one way and exit another.

That in itself is truly trick and highly adaptable. Ditto for the number of inputs which should be sufficient for most serious systems. Then factor in that this type of passive is essentially unbreakable. There are no coupling capacitors to age or blow up, no resistors to fail, no circuit board traces to peel. The air-gapped transformers interrupt ground loops. (That's how this type of attenuation differs from autoformers such as are used by David Slagle. Autoformers -- which also appear in McIntosh amplifiers or as the impedance multipliers of Paul Speltz -- are single-winding coils tapped at various points to obtain the required voltage ratio. The S&B units are true isolation transformers with separate primary and secondary windings.) Gain in most preamps is redundant when the majority of amplifiers is driven to full output by the source voltage. Superior amplifiers don't need assistance from preamps except for the bare functionality of attenuation and input switching. Suddenly the entire concept of TVCs makes awful bloody *sense*. With full bandwidth regardless of setting and -- reputedly -- no impedance problems, this is a passive that doesn't sound flat, boring and bereft of life.

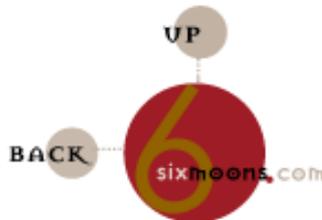
In fact, I'm buying the review sample. It's a match made in heaven with the Yamamoto SET. Additionally, it's a tremendous reviewing tool to assess an amplifier's merit without the sometimes dubious contribution of preceding signal manipulations. And no, I cannot in all honesty say that I heard repeatable differences to the copper-wired Canadian AudioZone PRE-T1 except for a suspicion of somewhat greater sweetness or silken texture with the Brit. But I'm warned that these transformers "take forever" to break in. I'm uncertain how much of that could simply be a function of sufficient hours of playtime. And no, the Passive Magnetic isn't replacing my valve-powered hybrid ModWright preamp. That is just as heavenly matched with my solid-state amps. No universal panacea then, no magic bullet, no preamp for all seasons

and all encounters. But in the *right* circumstance, the Music First is the best preamp I've yet heard. Coming from a low-powered direct-heated triode fiend, this -- if I may say so myself -- is a rather unexpected conclusion. That's why the Music First Audio preamp factors in my "Best of 2005" list of favorite personal discoveries. When you learn a new trick, it's time to stress its relevance to your audience. My new secret weapon? A superior TVC (transformer volume control) plugged into a zero-feedback low-power S.E.T. Whoa *baby!*

Srajan Ebaen

PS:

For the speculative among us, it's tantalizing to wonder what would happen were such attenuation transformers wired with amorphous wire, or around amorphous or nano iron, nickel or cobalt cores. As it stands, S&B uses 80% permalloy cores so perhaps some of those experiments have already been conducted? I have come across a buried mention somewhere that another company is about to launch TVCs using in-house designed transformers. I don't recall who and where but unless it was a faux blip in my overheated imagination, we should eventually see that product being announced. If so, the concept is catching on enough to invoke the capitalist reaction of fierce competition. For now, Stevens & Billington enjoys the rep of being the premium supplier of audio-quality attenuation transformers and this is their turnkey product.



Manufacturer's [website](#)

US importers' [website](#)