

Music First Audio Passive Magnetic pre-amplifier



Passive pre-amps are back with this surprising revision to the breed

Music First Passive Magnetic

PRICE £1498

The basic task of an amplifier is to drive a loudspeaker with a magnified version of the input signal. But we must have control over the output if we are to rein in the volume of the music. Enter the pre-amp, whether inside an integrated amp or as a standalone; traditionally a means to control and boost the low output from radio, tape, and record player.

But recently – or at least since CD became the principal source of music in most people's lives – the pre-amp is required not so much to raise the source's output before it meets the power amp, as to attenuate output for comfortable listening. And the built-in phono stages of yore are less common now, even in specialist pre-amps, since many users don't need one, while the vinyl-playing contingent tend to use a dedicated outboard unit anyway. So if a power amp is wire with gain, the modern pre-amp is essentially 'wire with adjustable *negative* gain'.

This led some designers to investigate the simplest of all volume controls, a solitary potentiometer connected between source and amplifier; or even purer, just two fixed resistors,

chosen from a bank of carefully-selected values on a rotary switch. In an ideal world, that's all you'd need for the most unsullied sound, forsaking needless electronic buffers and gain stages between you and the music.

However, a pre-amp needs to do more than just control level. Aside from its role in uniting different audio sources in a common box for easy selection, it must also provide a good impedance match between source and amp. And this is just where the resistor-based solution can fall down,

A further problem with resistor-based solutions is that they cannot, by their very definition, provide any signal boost, which sometimes even modern sources may need, depending on the output of the source, the amplifier input sensitivity, and speaker/room characteristics.

But lo, the story of the passive pre-amplifier has just been re-written, thanks to the Music First Audio Passive Magnetic Pre amplifier. Instead of using resistors, the Music First unit uses line transformers, with a range of taps on the

“ If you don't need added features from a pre-amp this box can stand ahead of active units three times the price ”

as it will often fail to do just that. Ultimately, a resistor passive unit's success or failure hinges on optimising the source's output impedance to the amplifier's input impedance, aided by short, low-capacitance interconnects. Get it wrong and you can expect a flat, dynamic-less sound, with rolled-off high frequencies at high, near-unattenuated, volume settings.

secondary windings, these wired to a rotary switch that recreates a notched rotary volume control.

It offers two fully-balanced inputs on XLR sockets, one set of XLR outputs, plus four regular unbalanced inputs on RCA phono sockets. For unbalanced power amplifiers, there's a single pair of phono socket outputs. Mixing between balanced and unbalanced lines is possible, for

already has the potential for a class-leading low-coloration imprint, the Music First had an equally delightful sense of transparency and fine detailing, with clean edges to notes and not a hint

micro. Bass slam and weight was akin to having no pre-amp in circuit. Stereo width was also superior to a resistor passive. Where the Passion had slight narrowing of stage, the Music First unit

comparisons, I felt the Music First was born to its role as a balanced line controller.

Across a range of volumes, the Music First always delivered, without restraint. Its unfussy compatibility with all and every component I tried it with substantially enhanced its position as a universal stereo system controller. In short, I feel the Music First pre-amp has the finest balance of virtues of any pre-amp I've heard to date. Providing you don't need added features from a pre-amp (some cannot live without remote control, or a mono button, or balance control), this £1500 box can stand alongside – even ahead of – active units at over three times the price. It may have an unwieldy name and a somewhat utilitarian appearance, but for honest sound quality it warrants the very strongest recommendation possible. ■

Andrew Harrison

The net effect here is a newly opened window into the sound available from both familiar components and records

of artifice. This brought an unearthly sense of realness to the sound from the reference system, based around a dCS front-end with Chord SPM 1200C power amp and B&W N802 speakers. But it also introduced an improved grasp of dynamics, of light and shade, letting through the power of the original sound, the macro details with the

kept instruments in an even, natural-sounding wide stereo spread.

But while the Music First proved to be something of an over-achiever with regular phono leads, it cracked the glass ceiling in an all-balanced system wired with XLR cables. Even allowing for differences in level in direct

Lab report (continued)

best of both worlds. Thus the signal path simplicity, avowed neutrality and transparency of a passive control is allied to the good matching, cable versatility, potentially superior signal-to-noise ratio and greater dynamics of a costly top-flight active line pre-amp.

Compared with a resistor-type volume control, the transformer type provides orders of magnitude improvement in input/output matching. Typically a resistor 'passive' will have a 20k ohm load on the source and an output impedance of 2k ohm.

A transformer version may have a dynamics-enhancing 100k ohm input impedance, which is very kind to the source, while the output impedance is exemplary, uncritical of either cable or loading, with a noise-minimising sub-30 ohm of effective resistance. All the signal power of the source is potentially transferred to the load terminal. Conversely for the resistor type, most of the signal 'power' is bypassed in the selected resistors.

The debate regarding the relative sound quality for transformer and resistor types of control may concern the lengthy primary and secondary

windings the signal must traverse, plus the conversion to magnetic energy and back in a transformer's ferromagnetic core. This may be contrasted with the 'sound' of a two-resistor attenuator, as found in high-fidelity amplifiers.

Without question the attenuator transformer is a labour intensive precision product, and this is reflected in the high price.

TEST RESULTS

With a typical 600 ohm source and 100k ohm load, paralleled by 330pF capacitance for a significant cable length, the Stevens & Billington transformers, set to -10dB gain, gave an exemplary frequency response: ± 0.05 dB from 12Hz to 40kHz [Fig 1, p57]. There was an insignificant rise of 0.4dB at 54kHz and then a roll-off to -6dB at 105kHz, the out-of-band return delayed until 200kHz.

For distortion-versus-frequency see Fig 2 [p57] with 5V, 600 ohm source, 100k ohm load. I measured total harmonic distortion for a rated 2 volt output at better than -115dB; and for any level up to 5 volt, obtained a superb high-frequency intermodulation result,

19kHz/20kHz, lying at the Audio Precision threshold of -112dB, ie, about 0.00024%! It was little affected by a hyper-severe 600 ohm output loading, eg, -1dB at 20kHz.

Channel balance was excellent, within 0.004dB at lowest settings with negligible 0.003dB imbalance at higher settings, confirming the winding precision. Small DC offsets from a source were tolerated, with negligible measured performance loss for up to 50µA, or typically up to 10mV from a 300 ohm source.

To investigate fully the very low distortion, I used spectrum analysis and found -103dB at 2 volt (100Hz stimulus), mainly 2nd, 3rd, 5th, and some higher harmonics, these -130dB or better [Fig 3, below left].

For the same level at 1kHz, 5th harmonic was highest, at -115dB [Fig 4, below right]. The remainder were generally better than 120dB down. This is clearly a finely designed and superbly linear audio transformer.

SOUND QUALITY

I could not find a combination of source and amplifier where lifting the internal

ground resulted in complete absence of audible hum [on a different, unboxed sample to the unit pictured], but I generally liked the sound of this transformer controller, finding it superior in some respects to my reference switched-resistor Passion and as such, more comparable with an audiophile pre-amplifier such as the Conrad-Johnson Premier 17LS.

While not quite as open and perfectly neutral as the Passion, the S&B transformers provided a sense of greater drama and dynamic expression, firmer deeper bass, and an impression of more detail. The Passion had slightly larger yet well-focused stereo images, while the S&B seemed more delicately subtle and transparent, yet somehow a little more contained.

As predicted, a greater variety of cables and cable lengths were happily tolerated by the transformer control unit, which presented the stereo image a little closer than usual.

With the Passion typically scoring 33 points (under optimum conditions), the S&B with its greater matching tolerance edged slightly ahead, with 36. ■
Martin Colloms

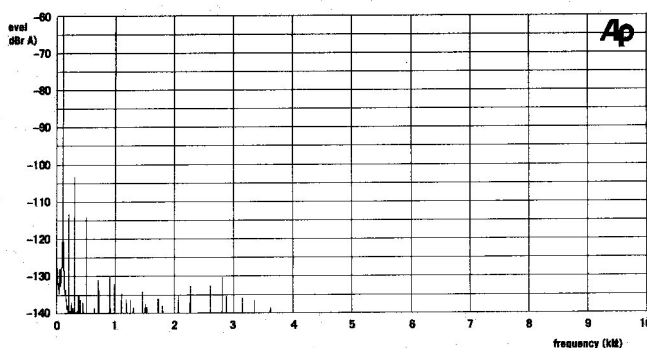


Fig 3. Distortion after spectrum analysis, 100Hz stimulus (2V)

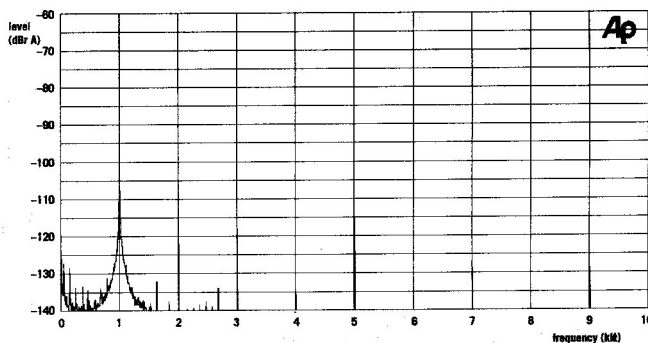


Fig 4. Distortion, 1kHz (2V): 5th harmonic highest at a mere -115dB

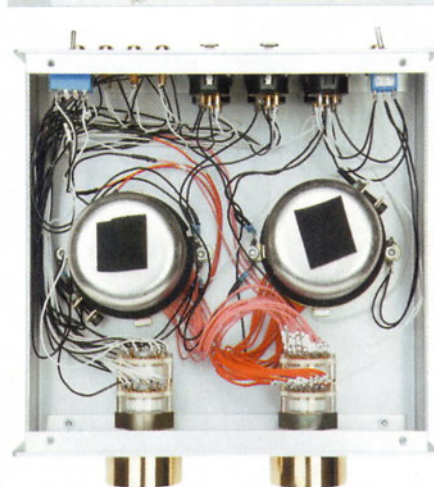
example a CD player with XLR connectors can be used with a power amp's unbalanced inputs.

It's all housed in a brushed-aluminium box 210 x 80 x 204mm (whd). On the front is a six-way source selector (inputs A and B are balanced; C-F unbalanced), and another knob that adjusts volume from 0dB (no attenuation, ie, a 1:1 transformer ratio) down to -46dB, in 20 steps. Most of these steps are 2dB apart, giving a fine degree of control. And since transformers can step up as well as down, the designers decided to include a toggle switch on the rear that engages an additional 6dB of gain across the board, if required. Another switch here has three positions to set grounding path, either XLR, RCA, or Lift. In practice, whichever connection standard was in use, I experienced no hum problems whatsoever that required any remedial fiddling here.

The overall feel of the product suggests it has been carefully assembled, a view supported by examining the intricate wiring loom inside. Styling is simple and unadorned, excepting the suspect aesthetic choice of gold-plated control knobs against a silver aluminium fascia.

At the heart of the unit lie 80% nickel Permalloy transformers, made by Stevens & Billington, a long-established firm responsible for the final product. The model I tried used TX-102 transformers with an advertised frequency response to 300kHz (although this will vary slightly with different source impedances). In contrast, the pair of transformers tested by MC were evaluation samples supplied without the usual casework. These are a revised design too, deliberately engineered with a curtailed HF response by altering the core sandwich construction. This was to answer customers' requests for subtle filtering of intrusive out-of-band noise from digital source components, and so may be particularly useful for SACD playback, with its huge ultrasonic noise problem.

All wiring on the standard unit is 0.6mm silver-plated solid-core copper with PTFE insulation. Connectors are from Neutrik and Deltron, while the Elma rotary switches feature silver contacts. A minor issue may be



Ground lift switch and balanced connections (above); sealed-cans transformers ward off RFI

encountered with large diameter phono plugs on the unbalanced inputs, as the close spacing makes some fat locking types unpracticable.

SOUND QUALITY

A pre-amp is not supposed to have a sound of its own. It should be entirely transparent, adding no

noise or distortion nor subtracting any of the signal. Surprisingly, this is not easy to achieve in real life, and otherwise well-specified systems are often held back by mediocre-sounding pre-amps.

In simple performance terms, the MF Audio pre-amp was a revelation. Wired initially in unbalanced mode it was possible to compare it with a number of control units, including a Chord CPA 3200E, BAT VK51SE, and Audio Synthesis Passion passive. Compared to active units, the Music First pre-amp allowed a refreshing, liquid sound, allowing unsullied extension into the high treble and beyond. This was matched by a wholly open midband, and unsmearred low bass. Three-dimensional soundstaging was on a par with a first-class active pre-amp, with no constriction on width or depth; and this was all backed up with a truly dynamic grip on the music. The net effect is a newly-opened window into the sound available from both familiar components and records. Compared to the Passion passive unit, which

Lab report

The primary components used here are two, well-shielded sealed-can audio transformers. These specially made parts comprise separate primary and secondary windings. Source and load ground/chassis connections may be separated and thus chassis ground currents may be isolated from each other, potentially increasing fidelity.

Tapped transformer technology is offered as an advance on the passive resistor type of line controller and the active powered type, aiming to provide the

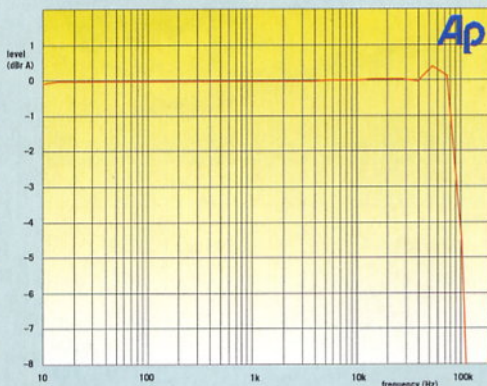


Fig 1. Frequency response (-10dB gain); note that measurement is of HF-filtered Mk 3 transformer

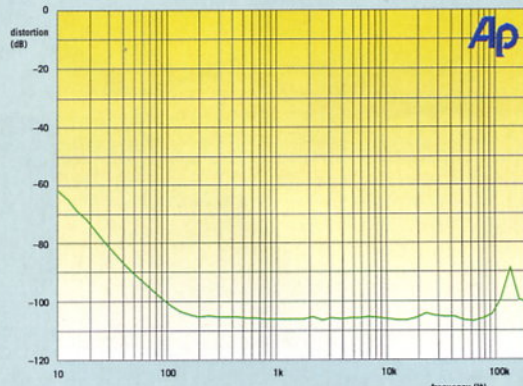


Fig 2. Distortion versus frequency (5V, 600 ohm source, 100k ohm load)