

## Stevie Wonder Chooses PMC

Bryston is pleased to announce that Stevie Wonder has purchased a pair of PMC AML1 powered speakers.

The AML 1 is collaboration between PMC and Bryston



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## Loudspeaker Wiring

The length and resistance of the loud-speaker cable in your audio/video system is very important. In fact, any speaker cable is a compromise and the shorter you make your speaker cable the more accurate the sonic result.

Keeping speaker cables as short as possible is essential for maintaining good (damping) control over the loudspeaker drivers. Music is a dynamic 'transient' (stopping and starting) condition and the better the amplifier can control the motion of the drivers in your loudspeakers the better the performance. The normally extremely low output impedance

of the power amplifier will be compromised by any addition of 'series resistance' associated with speaker cables. Therefore, no cables (as in powered speakers) are best followed by keeping the speaker cables as short as possible.

Most loudspeakers have impedance curves which will vary all over the map with frequency but this does not mean that adding a small series resistance due to loudspeaker cable is unimportant. In fact, if you add some small resistance between the amplifier and the speaker, you will create an interesting result. The loud-

speaker's frequency response will start to vary directly as its own impedance! The magnitude of this effect increases directly with the magnitude of the series resistance added. So what you can end up with is a frequency response from your speaker which is a direct mirror of the impedance curve of your loudspeaker. This undesirable effect can be minimized with short, low resistance cables and low output impedance amplifiers (no tubes please). The output impedance of any decent modern power amp will be practically zero ohms (Bryston amplifiers are typically .01 ohms). To optimize the damping factor (ratio of speaker impedance over amplifier output impedance plus speaker cable impedance), any resistance between the speaker and the amp is undesirable.

If we had a perfect amp with an output impedance of zero ohms and a perfect speaker cable with a series resistance of zero ohms then the damping factor would be infinite.

**Note:** *In this case the damping factor would be infinite regardless of speaker impedance (something, even if it changes, divided by nothing is always infinity).*

At the other extreme, power loss in your speaker cable contributes to audible dynamic compression because: Cable Power loss = Current SQUARED X Resistance of speaker cables. On dynamic peaks, output current



where PMC designed the speaker and the internal electronics are used under license from Bryston. The woofer has 140 watts of discrete Bryston power, the tweeter 70 watts and the electronic crossover is a 10B module designed specifically for the AML 1. Stevie already

has a pair of PMC BB5's in his LA studio which he purchased about 2 years ago. The AML1's he uses when he travels and as a near-field in his studio to compliment the BB5's.

## DreamWorks Studios PMC/Bryston BB5/XBD Monitor

Bryston is pleased to announce that DreamWorks Studio has purchased a pair of PMC-BB5/XBD Active loudspeakers for their facilities in California. Each active channel consists of a stacked PMC BB5/XBD speaker, two PMC/Bryston



Series 7B amplifiers, one PMC/Bryston Series 4B amplifier and one PMC/Bryston custom 3-way electronic crossover.

DreamWorks has been using PMC-IB1 speakers and Bryston amplifiers for about 2 years now and the BB5 system is being added to provide monitoring for their CD music division.



can be in the 'tens of amperes'. That squared, times what might seem an insignificant amount of cable resistance can cause significant power loss.

This may explain to some degree why some people hear substantial quality increases in their systems

when they bi-wire or tri-wire while others claim little or no improvement. In some cases the extra set of speaker wires would significantly reduce the resistance (and improve the damping factor) between the amplifier and the loudspeakers, especially in long runs. With the advent of multi-channel audio systems utilizing rear/back channels usually positioned 20 to 30 or more feet away from the amplifiers this lack of control becomes a serious issue. The Bryston PowerPAC Series of amplifiers are an attempt to minimize this problem by allowing the amplifier to be placed adjacent to each loudspeaker or attached directly to it (ex: PMC loudspeaker) using long interconnects (preferably balanced). By the way, the reason that cable length is relatively unimportant for component (Preamp to Amp) interconnects is that

the magnitude of signal current in the conductors of

$$\left. \begin{array}{l} \text{CABLE POWER LOSS} \\ = \\ \text{CURRENT}^2 \times \text{RESISTANCE} \\ \text{of} \\ \text{Speaker Cables} \end{array} \right\}$$

interconnect cables is so small the power loss is insignificant.

You must always try to preserve the dynamic integrity of

the recording so reducing the resistance of your loudspeaker cables is one giant step in the right direction.

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