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This Issue

PMC & Bryston Strike Gold in California

Bryston is pleased to announce that Golden Era Productions has installed a number of PMC/Bryston monitoring systems in their

facility in California.

Studio rooms one and two have installed Stereo BB5/XBD Active Systems. Each active channel consists of a stacked PMC BB5/XBD speaker, two Bryston 7B ST Professional amplifiers, one 4B ST amplifier and one

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Getting Wired Two

This is a follow up to our previous Newsletter (Volume 5, Issue 2) by Jim Hayward on cables, I thought I would offer some clarification based on some of the questions raised by that article.

There is not a day that goes by where I do not get asked what cable Bryston recommends with our amplifiers. Hopefully the following will assist you in weeding through some of these complex issues.

Part of the problem is that there is an awful lot of marketing going on and not much science in some cases. The 'elaborate packaging' of these interconnects and speaker cables may make you feel warm and fuzzy but the electrical characteristics are still the primary issue of concern. Simply stated the geometry (where the plus is relative to the minus) of a cable determines the inter-relationship between the measured performance of a specific cable. These measured performance criteria are call the 'Primary Constants'. They are R-resistance, L- inductance, C- shunt capacitance and G-shunt conductance. You can play around with all types of exotic packaging and add-on appendages you like but ultimately the measured performance (primary constants) tell the tale.

Bryston does not think cables should be 'voiced' to sound a specific way. The best cable is NO cable at all so we contend that the best cable is the cable that changes the signal the least.

Coax Interconnect Cables:

An analogue Preamp/Amplifier connection is a 'high impedance interface' therefore; you are looking for low measured Capacitance. An interconnect cable acts like a capacitor in the signal path so the better that capacitor the better the interconnect. We use an interconnect wire with (very low capacitance) and the RCA connectors are made for us in Switzerland. The RCA cables 'make and break ground' first and last when connecting and disconnecting. This prevents ugly pops and bangs from going through your system with the possible negative results.

XLR Interconnect Cables:

The XLR cables we use are also very low in capacitance. Actually the XLR cable we are currently using is in fact low noise balanced microphone cable with 100% shield coverage against RF. The advantage of Balanced XLR cables is that they have a noise cancelling effect know as 'common mode noise reduction'. This helps prevent noise and hum from affecting your system. With today's complexity of audio and video surround systems this is a big plus, so if you 'got em- use em'.

Digital Cables:

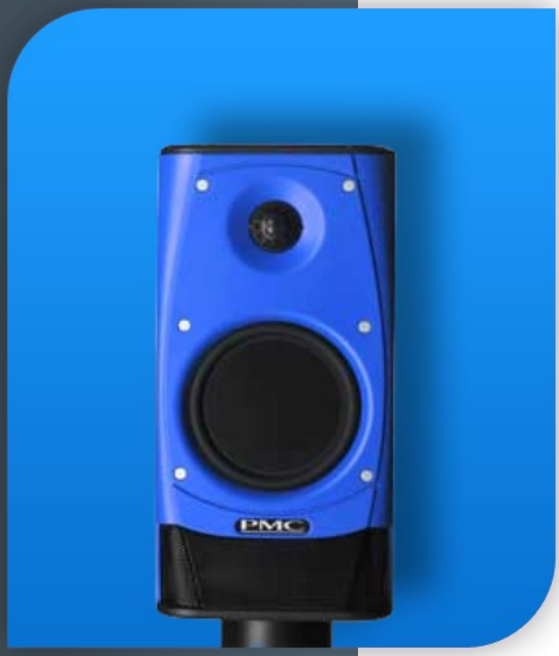
With 'Digital' interconnects things are a lot different. The wavelengths of digital signals are 'very

PMC/Bryston 3-way electronic crossover.

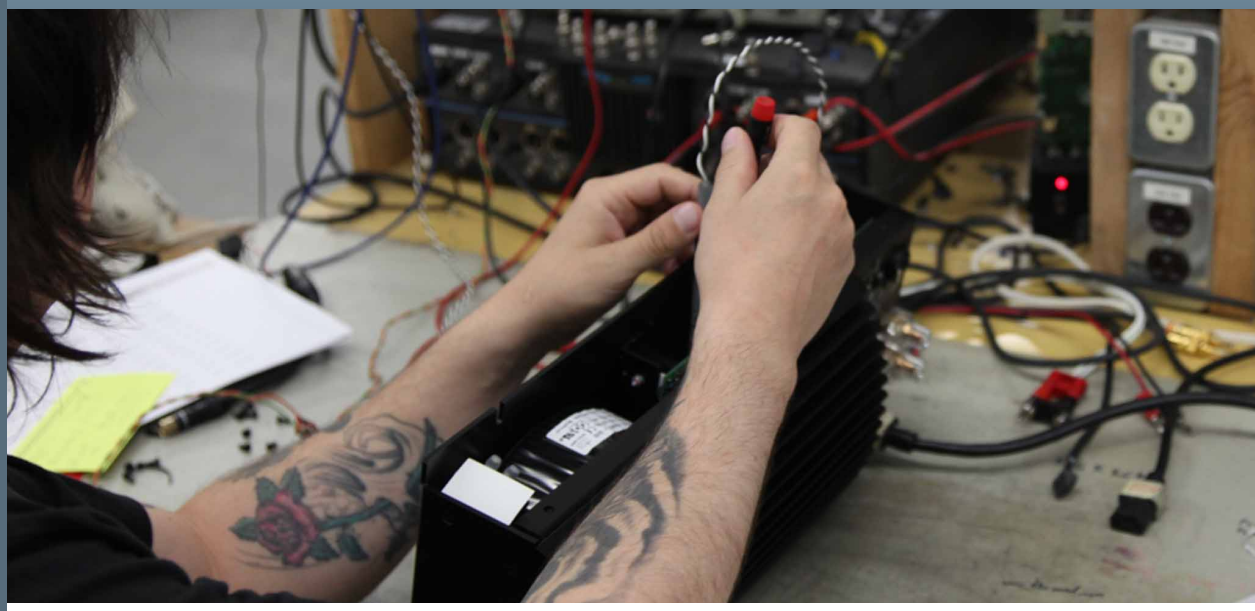
Studio three has installed a Stereo MB1/XBD Passive system using two 7B ST Pro amplifiers.

A fourth room has installed the PMC/Bryston MB1/XBD Active system. This system is identical to the BB5/XBD system but uses two 12 inch transmission line woofers rather than the two 15 inch transmission line woofers utilized in the BB5/XBD rig.

In a state of the art Movie Scoring Studio, Golden Era is installing a PMC/ Bryston



5.1 surround system consisting of a Left, Center, Right, of BB5/XBD Active loudspeakers and two MB1/XBD stacked units for left and right rear monitors.
To round things out Golden Era also purchased 4 pairs of AML 1 Active speakers.



short' (same for FM) so the lengths and terminations are much more critical than with the analogue signals previously discussed. When the wavelength of the signal the cable is used for approaches 1/30th of the length of the cable then transmission line effects start to appear and much more attention has to be paid to the connection and termination. If not then reflections and cancellation of data is a real possibility. For instance the AES/EBU digital connection on the back of the Bryston SP1 should be used with a cable having an impedance of 110 ohms.

Video Cables:

Video cables also operate at very high frequencies - typically 5-6 MHz for Composite and S-Video and 8-30 MHz for Component Video depending on the scan rate and resolution. So again understanding the wavelengths of the signals and interfaces involved is important.

Speaker Cables:

The Amplifier/Speaker interface is a 'low impedance' connection. Therefore, in a speaker cable you are looking for low 'self inductance' (because inductance rolls off the top end) as opposed to 'low capacitance' required in the RCA or XLR analogue interconnect. For speaker cables we use a stranded 9 gauge linear crystal copper with 'Heavily Gold plated' Spade lugs or Expandable Banana plugs specially made for Bryston.

A/C Power Cables:

When you plug your power cord into the wall outlet you are in 'SERIES' with all the wire on the other side of the wall all the way back to the power source. The small length of power cord from the wall to the amp is insignificant compared to the miles of wire it is connected to. As long as the power cord can deliver the current and voltage required to drive the amplifier to full power it is as good as it can get.

There are 4 basic things to remember about these issues:

The connection should be of similar metals (preferably gold) and be airtight. If not airtight it will break down molecularly over time and begin to rectify or produce a diode effect on the signal.

With all the RF floating around today the better the 'Shield' on the interconnect, the less intrusive the RF will be.

The connection between your analogue Source components (Preamplifier, CD Player, Tuner, DVD Player etc.) is a 'High Impedance' connection and the interface between your power amplifier and your speakers is a 'Low Impedance' connection. So, the requirements are totally different for optimizing these interfaces.

Digital and Video cables are much more susceptible to reflection/phase/cancellation problems because of their short wavelengths relative to cable length.

As you can see from the above, no surprise that people hear differences in cables when connected to the variety of equipment in the market today. Given the differences in input and output impedance's between transistor and tube gear, the lack of understanding of

The AML 1 is collaboration between PMC and Bryston 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.

Golden Era stated that they wanted to standardize all of their recording facilities and after many auditions the PMC/Bryston monitoring systems were the unanimous choice.

the high impedance and low impedance interfaces, the world of RF, and the digital/video connection issues no wonder we have these differences of opinion.

Recommendations:

I highly recommend keeping the speaker wires as short as possible and utilizing XLR balanced lines if available. Given the choice of long interconnects and short speaker leads or short interconnects and long speaker leads - choose long interconnects (preferably Balanced) and short speaker leads. With digital and video cables finding out the sending and termination requirements is very important due to the very short wavelengths relative to cable lengths involved.

The cables Bryston recommends represent a scientific approach to these issues and are the cables we use in all our professional studio installations.

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