

hiddenwires

A-BUS EXPLAINED

By Andrew Goldfinch and Len Andrews, LeisureTech Electronics



In 1997 we took a clean sheet of paper to the problems of audio distribution. Being audiophiles, we did not like the sonic losses that resulted from long runs of audio cable. Let's face it, if it is important to get good cable across a room, running cable to the other end of the house can only magnify the problem.

Bringing the amplifier into the room with the speakers was a good idea, but finding a place for the amplifier close to a power point in the average room was not only difficult, but expensive. And when you look at multiroom audio system design and installation, it really is a messy process requiring a lot of specialist knowledge, training and organisation. What was required was a system that significantly simplified the whole process and most of all sounded good as well. Our result was a technology platform called A-BUS.

How A-BUS works

A-BUS uses a single CAT5 cable to distribute audio signal, system power and control data. The audio signal is distributed at line level to eliminate signal losses.

We tried to keep the concept simple for everyone, including the system designer, the installer and the user. Indeed the A-BUS format has been adopted by many notable companies including Russound, Audio Partnership, Harman/Kardon, Cambridge Audio and Forté Electronics.

Systems can be single-source, multi-source and multi-zone - the CAT5 cabling layout is the same for all. In addition, the modular concept and interchangeability between brands offers a flexibility not seen before in the multiroom audio industry. A Russound room module can be connected directly to the A-BUS output on a Cambridge Audio A-BUS-ready amplifier for a simple one-room extension. If more rooms are required, the amplifier's A-BUS output is fed into a hub via a CAT5 patch lead. Most hubs are expandable, thus making it possible to cater for almost any size home or office with standard components.

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The Harman Kardon A-BUS ABH 4000 multi-source, multi-zone hub.

Each room has an amplified volume control or keypad, usually including infrared for remote control capabilities. For places that are hard to wire, the cable can go directly to A-BUS/DIRECT speakers in the ceiling. A-BUS/DIRECT places the amplification directly on the speaker with embedded IR via a remote to the lens in the grille. Again there are many different alternatives to choose from.



The Forté Electronics ABD-C6 A-BUS/DIRECT amplified speakers, with the ability to be remotely controlled via IR.

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The interoperable advantage

Proprietary systems tend to lock the installer into a single package with no flexibility to choose the right solution for the right room. It seems rather pointless installing an expensive keypad in the master ensuite just because it's the only type of keypad available in the pre-packaged kit, whereas in most cases, a rotary volume control will do.

The interoperability of A-BUS-based systems opens up a new area for multiroom audio upgradeability, with Harman/Kardon and Russound releasing more intuitive systems. Existing A-BUS owners can now easily upgrade using their existing wiring and if they only want to improve part of the system, their existing components can be retained, resulting in installation time taking minutes rather than hours.



The Russound A-KSC A-BUS amplified keypad.

Local input

With an individual amplifier in each room, A-BUS has another unique advantage over traditional systems, namely a local input. This means that in bedrooms for example, the user can have the advantage of A-BUS sound quality when watching TV. All the installer has to do is run the CAT5 cable past the TV and connect the TV's audio output to a local input module. It is all very simple - the local input module (LIM) automatically switches the input when the TV is turned on, and switches back to the central system when switched off. The LIM is also becoming increasingly popular with iPod users in bedrooms. Just plug it in and the iPod will fill the room with music.

Sound quality

Being audiophiles, our main objective was to ensure that high-quality audio was made available to every room in the home. Using a single CAT5 from the hub to each room, A-BUS delivers high quality line-level signal to amplifiers located in the room with the speakers.

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While the power output is more than enough for most applications, our position is interestingly different to those involved with mainstream audio reproduction. We believe that most multiroom systems are primarily used as background music, so we have designed the system's sound quality to be particularly good at low volume. Whereas traditional line losses muddy the clarity and sound peaks, which encourages listeners to increase the level to get more clarity, our belief is that you should be able to enjoy your music throughout your home, all day, without becoming fatigued.

Cost implications

If you are in an installer who understands how critical cable losses are, you will know how difficult it is to get homeowners, and particularly builders, to invest in decent speaker cable. This compromise area locks the home into mediocrity as it is very difficult to upgrade speaker cables after the home has been completed, and placing a good speaker in this type of installation is likely to offer very little reward.

An A-BUS installation eliminates the cost of long speaker cable runs from the room to the control centre, and so using speakers with an efficiency of 88dB or above is recommended, which covers most of the in-wall and in-ceiling speakers available.

Conclusion

With the growing demand for multiroom audio, A-BUS presents the ideal solution for the future. Its plug and play approach makes it easy for any installer with CAT5 knowledge to design and install systems to almost any requirement, with little fuss. In addition, a lot is happening with A-BUS at the moment, with most partners releasing new products this year. We are also working on a new open protocol for 2009 which will allow A-BUS systems to communicate with control systems and computer-based technologies.

Andrew Goldfinch is the Managing Director of LeisureTech Electronics Pty Ltd, and Len Andrews is the chief Mechanical Engineer. LeisureTech Electronics is a manufacturer and OEM supplier of custom audio video technology primarily consisting of A-BUS multiroom audio, CAT5-based intercom, infrared relay products, cable and speakers for the residential housing and light commercial markets.

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