



During the mid-1980s, it became increasingly popular to put speakers into secondary rooms, e.g. bedrooms, kitchens and bathrooms. Since all these rooms were still controlled by amplifiers located in the main room, homeowners still had to run downstairs to change the audio selection, which, by today's standards, was a pain. So it was only natural that homeowners began asking if there was some way they could select and control their music preferences from a secondary or remote room. And thus was born whole-house audio control.

IR CONTROL

As most in the industry are aware, one of the first distributed audio control devices to be developed was the infrared (IR) repeating system. Equipped with a remote control and an IR receiver, audiophile homeowners could turn on the AM/FM receiver, change sources and control the volume of their audio system—all without running across the house or even getting up. The IR repeating system would simply send a command over a wire and then repeat the signal in the primary room, as if the homeowner were operating the system from the primary room. This was even more convenient than sending one of the kids to switch CDs.

The ease of IR control didn't stop there. Not only could the IR system control audio components, it also controlled video components, such as a satellite system. In those days, 18-inch satellite dishes did not exist. The only satellite option was an expensive C-band system. Most homeowners simply could not afford a second unit to wire the master bedroom or basement game room, and their desire for whole-home A/V entertainment increased demand for IR control.

DISTRIBUTED A/V

The satellite industry and the audio industry, operating independently, created a real demand for whole-house distributed audio and video control. An IR receiver was placed in the secondary room, and an IR emitter was attached to the front of the A/V equipment. Homeowners could simply point at the IR receiver with their hand-held remotes and they got the control they wanted.

As soon as these systems found their way into the custom installation market, the custom installer had to deal with the aesthetics, which lead to the development of smaller receiver units inside a normal electrical J-box.

STREAMLINED FLEXIBILITY

Whole-house audio/video control stayed in the IR format until the late 1980s, when the market demanded even more convenience. To the homeowner, constantly looking for the remote became an aggravating experience. Custom installers realized that it would be even more convenient for their customers if, in addition to remote control, whole-house A/V could be controlled from a simple keypad in the wall.

However, soon after in-wall keypads were introduced, one major downside became

clear: these early keypad systems were priced too high for the average consumer. The high prices were due to a couple of factors. First, the brains of the system, which stored the IR control codes and sent them to the A/V components, were built into each keypad, keeping the cost of the keypad electronics high. And second, each individual keypad had to be configured by the dealer, which added to the cost of installation.

Over the past 10 years, the accumulation of technical capabilities and manufacturing efficiencies has given rise to a new generation of keypads. This new design is radically lower in price and therefore fits into the mainstream budget of mainstream consumers.

This new format allows the brains of the system to be placed in one central unit, instead of in each keypad.

According to Bill Cawfield, vice-president of SpeakerCraft's E-Group, such a design significantly reduces the cost of the system, not only because it lessens the amount of the circuitry required, but it also eliminates the labor cost associated with configuring multiple keypads.

Additionally, says Cawfield, an extensive IR code library can be stored in the system's centralized brain, allowing the installer to simply access the codes needed. This ease of installation contrasts with the time involved in learning each individual IR, which is a very labor-intensive exercise for many earlier-generation pad systems still available on the market.

At the heart of such a system is functional flexibility. Keys can be configured in the field to either be source selectable keys or function keys. The system is easily expandable beyond the master keypad enclosed in a single-gang J-box. The master keypad can select sources, control component features, repeat IR commands from the homeowner's remote, and turn systems ON or OFF. By adding a numeric keypad, and/or function keypad, the system is easily expandable.

These systems not only incorporate power status management of source components, they also contain many IR codes for discrete ON and OFF power commands. In addition, the systems are not limited to IR-controlled A/V components. RS-232-controlled equipment such as lighting also can be accessed via an RS-485-based communication protocol used between keypads and the central controller.

Each keypad is addressable and "remembers" what source was last selected. Similarly to the way a computer and its keyboard communicate, the keypad sends instructions to the central control unit, which then drives the system.

TURNKEY—BOTH SIDES

What's next for whole-house audio control? Well, according to Cawfield, the next wave of design is complete turnkey packages for the installer. Integrated pre-amps will be tied together with multiple power amps—all in one package. This will further reduce manufacturing and installation costs.

However, there are limitations to turnkey systems. The home must match the size of the system. If a home needs more sources or zones, then a turnkey system actually gets more complicated and expensive. So there will always be a need for individual system components for the more sophisticated installations. Nevertheless, the market has turned to offering complete turnkey systems that are simpler to install at less cost for the majority of audio distributed installations.

As a homeowner myself, I certainly realize that money does not grow on trees, and I see extensive logic to having one central brain control the entire system, reducing installation time and costs. But what really matters to me is that when my parents visit me at my house, they can listen to Lawrence Welk in the guest room, while I take refuge listening to Counting Crows in my bedroom.

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Budget Conscious

Whole-home A/V control systems become more affordable

By Leslie Stevens