

# Radio World

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USER REPORT

## Stations Go Livewire Route With Axia

*Denver Radio Co. Likes Easy Wiring, Lack of Central Router and Livewire IP Audio Protocol*

**by Mark Smith**  
**Director of Engineering**  
**Denver Radio Co.**

**DENVER** I have installed numerous consoles in several studios in the last 20+ years from just about every manufacturer. I was used to installing audio consoles with big bundles of good old reliable wire.

I ran across the Axia system at an NAB show a few years ago, and at first I was not sure about installing a console that's essentially a computer on an Ethernet LAN. It took me a while to get my head around an audio board that had no wires running between the studio and master control. But after a while I got past this old-line kind of thinking — and I am glad I did, because I got a chance to do something that not everyone gets to do: build two new radio stations from the ground up.

The Denver Radio Co. purchased two “move-in” stations, and we built the studio facility with all new equipment mostly from Axia and Telos. We had little time to install the studios, less than 13 days from the time the studio and master control areas were finished to the day we had to go on the air.

Fortunately, I made the decision to go with Axia. The system arrived about a month before we had to start the installation.

I set up and pre-configured the system in my house along with my IT manager, Lee Damschroder, while we waited to take possession of the new studio suite. This saved us many hours when “crunch

time” came, requiring us to get the studios built and on the air in a hurry. I cannot imagine having gotten the first three of our five studios installed in such short

the console outputs and audio nodes, and developing an IP address scheme to allow us to identify each Axia component and audio source through the browser interface.

It only took a short time to learn how to configure the consoles and audio nodes,



Smith, shown with the Axia system, likes that Axia networks have no central router to fail: ‘Every console, audio node and router is a stand-alone unit. This offers great risk distribution.’

order if we had decided to use a conventional system.

### **CAT-5 for audio?**

The process of setting up the Axia system wasn't hard, but it was different than we were used to.

Lee and I worked out a good numbering scheme for all the sources, which are unique to each studio and the master control room. This included numbering

and after a few days we became pros at setting up the system. After that, installation became “plug-and-play,” as every console source, profile and input had been configured.

I also spent several evenings fabricating XLR-to-RJ-45 connectors with Cat-5 so the wiring was the correct length and ready to go when we mounted the equipment in the racks.

I know what you are thinking: Cat-5

computer cable for audio? I was used to standard audio cable, but soon got past that as well. Category cable is twisted so it offers excellent rejection to noise, and the audio is all balanced so we have had no trouble with noise even though there is an FM transmitter right next door (which I had to filter out of speakers and several other things). I have never heard it in the Axia system, or on our air.

Additionally, the impedance of the Cat-5 wire is close to the 110 ohms preferred for AES runs.

With Axia, every new audio node or other equipment that is Axia-aware automatically shows up on the network whenever it is plugged in. As we fired up new nodes, they would appear one-by-one and we'd make routing assignments. I built the KSYY(FM) studio in one afternoon, and it was ready to go on the air. I can't

Wiring is easy. I don't have a single DA or punch block in the building. When I talked to Rod Graham at Arrakis, which built my studio furniture, he wanted to know how big the hole for the wire needed to be and how many punch blocks I needed. He thought I was joking when I said I just have one small cable from the console and no blocks at all. Sorry, Rod, there isn't anything there other than a few wires for monitors and headphones.

Axia's newest console software provides EQ for all sources, and great audio processing for each mic source, with compression and de-essing capabilities similar to the familiar Symetrix 528E. Plus, the Axia microphone nodes can take anything from microphone to line level, and provide phantom power. There is really no need for an outboard mic pro-

cessor anymore, which eliminates even more wire and is another box in the line to either fail or induce noise into your mic channel.

cessor anymore, which eliminates even more wire and is another box in the line to either fail or induce noise into your mic channel. Best of all, these settings can either be permanently associated with the source or loaded as part of a specific show profile. This means you can make customized console settings for any jock, which can include individual microphone processing, board layout and source EQ. The days of live off-the-air monitoring have passed, but the Axia guys have a solution for that too. You can select an Omnia processing preset and additional EQ for the headphone monitor channel, so that on-air talent can still enjoy "super stun" in their headphones while you process your station's sound separately.

When the driver is loaded, it looks to the computer just like any standard audio card, so it works with any audio production software. Most automation companies are collaborating with Axia to provide Livewire output with their system. The driver that comes from the automation companies gives the computer on which it is loaded 16 stereo ins and outs, but you can get a single-stream version for audio workstations.

It is nice to see an audio computer with no audio card, but it's even nicer not to have to use a 1/8 inch unbalanced audio jack to feed your professional audio system. Telos is now including Livewire on the Zephyr Xstream, its latest phone systems and Omnia audio processors. Other equipment makers are catching on as well. Some of these devices don't even need audio connections — just a power cord and a 100Base-T Ethernet connection to your Axia network. You can configure them through your Internet browser without even having to visit the device in person.

The days of having to go to the studio and hook up wires, and saying "no" to individual operator settings, is now over — and the transition is virtually painless. As more equipment manufacturers begin to include Livewire connections, life will get easier and easier.

From day one, the air talent just came in and started playing the hits and I have had exceptionally few questions or operator problems. It is an extremely powerful system, but for the operator, exceptionally intuitive and easy to learn. Every change is as easy as browsing the Internet, and I can quickly change a profile for any reason.

After making the jump from installing traditional audio systems to IP networks with Livewire, I can't imagine installing a standard audio console again.

*For more information, including pricing, contact Axia Audio in Cleveland at (216) 241-7225 or visit [www.axiaaudio.com](http://www.axiaaudio.com).* 

## **I was used to standard audio cable, but soon got past that. Category cable is twisted so it offers excellent rejection to noise.**

say it would have been that easy had we chosen another console manufacturer and had to run wires to each channel.

### **Consider this**

There are several great features the Axia system offers. Here are a few things to consider when you decide to build your next studio.

Axia networks have no central router to fail. Every console, audio node, router, etc. is a stand-alone unit. This offers great risk distribution. In the event that any one of these devices should fail, it would be a local failure and would not jeopardize the system. It is easy to move program output between studios, and you can configure profiles for any scenario you might think of, which can be loaded to make any console "on-air" ready in seconds.

There are no direct connections to the console. Audio enters at 1 RU rack units that have eight inputs and outputs, and becomes a networked source that can be made available to any console and become part of any profile.

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I also have noticed that audio throughout the system is super clean, likely due to reducing or eliminating digital conversions and keeping everything in the same format.

Axia is built around the "Livewire" standard, which is a protocol for trans-