

Field Guide

Radio Systems Millennium Consoles

One Installer's Favorite

by Bob Burnham

[SOUTHFIELD, Michigan - October 2004] I became a fan of consoles manufactured by New Jersey-based Radio Systems at a time when consoles from Pacific Recorders & Engineering could be found at many of the most respected stations.

A GOOD CHOICE

The year was 1988, and I had convinced the GM of a small independent AM station in Jackson, Michigan that the Radio Systems console would be more cost effective than re-building their old rotary RCA console, yet give them the performance and reliability of consoles demanding twice the price. And I was right.

A decade later, I would be in that position again at a Detroit area station. This time I specified RS consoles be ordered for both On-Air and Production use, since they are flexible enough to be at home in either application.

All the consoles at these facilities outlasted the stations for which they were purchased. They never went down or had problems outside of normal wear and tear on the (then) mechanical switches. But the real selling point to me, aside from the cost effectiveness, was the ease with which these consoles are installed, even using traditional time-intensive wiring techniques.

STILL THE CHOICE

In 2002, the Specs Howard School of Broadcast Arts in Southfield, Michigan began an extensive renovation, which included new consoles and my re-evaluation of several brands. The "cool" factor was very important as well as long-term reliability and their ability to tolerate daily abuse without failure.

The school is the home to four on-campus radio stations and 15 practice studios. Three of the four stations were slated to have their consoles replaced. I mentioned the "cool" factor – that was especially important in this case, as two of these stations can be viewed in a glass-enclosed area adjacent to the school's front lobby.



Our supplier (Broadcasters General Store) had suggested a variety of options, including some offering more features than we needed or being outside our budgetary plans. (A fully configured digital console at that time was cost prohibitive, so the choices were limited to high-end analog consoles.) In the end, the Millennium fit our needs the best.

There are times when analog equipment can be relied upon to serve an intended purpose with little or no sacrifice in quality. The analog specs of the RS console offer a signal-to-noise approaching -90 decibels and a distortion level of .005%. And since these consoles will be fully upgradeable to digital, the concern about investment in equipment for long-term use is lessened (however, as of this writing the upgrade kits were not yet available for shipping. The company, however, expects have to them ready for shipment by 4th quarter 2004).

Functionally, these boards cover all the basics, are extremely flexible and more easily configurable than some of the competition. With the change of a few supplied gain headers (plug-in resistor blocks), any (or all) channels can be configured as microphone level, standard balanced broadcast level, or unbalanced level, stereo or mono, etc.



The lamps in the control buttons in the Millennium boards are long-life LEDs (earlier RS models utilized incandescent lamps). The buttons themselves are feather-touch with sort of a rubbery yet positive feel with no audible "click" when pressing the start button.

A prize for the installer comes with this board – a free T-shirt the company sends when you return the warranty card. The T-shirt boasts either "When You're Good Broadcast It!" or "Ready for the new Millennium" with the company logo.

The T-shirts are cool, but actually the real prize is the connectors!

EASY INSTALLATION

Many of the most popular consoles utilize nylon connectors made by the Molex Corporation; cable termination requires extensive use of a crimping tool. Other consoles utilize variations of this, including connectors invented by the computer industry or proprietary connectors. RS consoles use a miniature plug-in terminal block connector known as the Phoenix connector, from manufacturer Phoenix Contact.

To wire a Radio Systems console, the only tools required are your favorite wire strippers and a "greenie" (the famous Xcelite R3323 miniature flat blade screw driver). That is it. If you make a mistake, use the screwdriver. Forget about any of those awkward pin extractor tools!

You can change channels simply by plugging/unplugging these connectors. They are secure long life connectors and a lot easier to move around than a Molex connector. Use your favorite punchblock tool and soldering iron for the terminations on the opposite ends of the wires and your entire studio is completely wired before you know it.

QUICK WORK

I found installing each console was only a one day project working entirely alone, using traditional techniques and central bunch blocks for each studio (it would take even less time with the Radio Systems pre-wire kits – especially if you used the Studio Hub product).

The installation manual is a well-organized binder that is concise and easy to follow with a specification check-out sheet in the front. The input boards on the RS console are situated in groups of six channels each, and other options and fine adjustments are logically arranged (no pun intended).

Each IC is socketed, although I have never had to replace any. The logic functions including the various mute applications are programmable with jumpers on the logic boards for each channel. They are mounted on the underside of the "hood" for lack of a better name (the underside of the control surface).

A few other studio and installation details: I use Belden 9451 for all analog wiring. The shield strips with the outer covering making it very easy and fast to neatly wire inside the console without having to use heat shrink to cover any stray foil.

One of our radio stations features an Enco Pro32 Digital Audio Delivery System. At this workstation, the school uses only the simple virtual cart players in the "DAD" system, which are configured to be remote-fired from the Radio Systems console. This is handled easily by the console's logic without using any external circuitry to either the console or the control card in the computer workstation.

Additionally, in each studio, a Sony MDS-E12 MiniDisc machine is set up to skim students' radio shows. Because of the design of the Sony equipment combining Play and Pause into a single closure, a Henry Engineering LogicConverter was used to both isolate and combine these functions into both the On and Off buttons of the microphone channels on the console. Alternately, it could also have been tied in with studio muting circuitry.

Two of the radio stations feature Marantz PMD-325 CD players and MD machines for playback. The remote control ports on the Marantz players are easily interfaced directly with the console's logic circuitry.

INNOVATIVE APPROACHES

Radio Systems was one of the first manufacturers to design a console with no audio on the actual faders or switches. As mechanical components wear, you do not hear it because they just control VCA amplifiers and logic switches situated in the input and output motherboards.

Radio Systems also developed the unique series of products called Studio Hub+. Its main feature is the use of Cat 5 cable as a studio replacement for Belden and other types of more expensive audio cable. I have not yet used Studio Hub products personally, but have seen their presentation at one of the conventions. I have also seen the specs and they look impressive, indeed. This company has a background in doing installations, and it is very apparent in their products.

Regarding maintenance on the RS products: there is none! At one point, it was considered important for a console to have a modular design, rather than Radio Systems' approach. If an input channel failed, you could pull it out and swap it for another while the bad one was being repaired. With the increased reliability of today's broadcast equipment, however, that need has been largely eliminated. In fact, on some of the older modular consoles, those edge connectors can actually become a maintenance issue as their contacts oxidize.

I have already pointed out there was never a major failure in any of the RS consoles I had installed over several decades. The Millennium consoles at Specs Howard School have been in service for two years and none have exhibited a single problem, small or large.

There are many good console products being offered to broadcasters today. Depending on the facility needs, sometimes a good part of the budget needs to go for associated equipment; there just might not be an extra thousand or two available to go toward the full-blown digital model just yet. If that happens to be the case, the Radio Systems Millennium analog model would make an excellent choice. Looking ahead, when the studio is using digital equipment, you can always upgrade the console to digital.

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