



Personal Monitor Mixing with Engineer Control

For everyone involved in the staging of live music events—performers and audio professionals alike—distributed monitor mixing has been a real blessing. With monitor mixing in the hands of performers, engineers don't have to worry about trying to meet the individual—and often conflicting—needs of a stage full of musicians. Especially with more and more performers switching to in-ear monitors and requiring more customized monitor feeds, giving musicians some control over the mixes can make an engineer's life a lot easier, while also resulting in improved monitors and FOH sound.

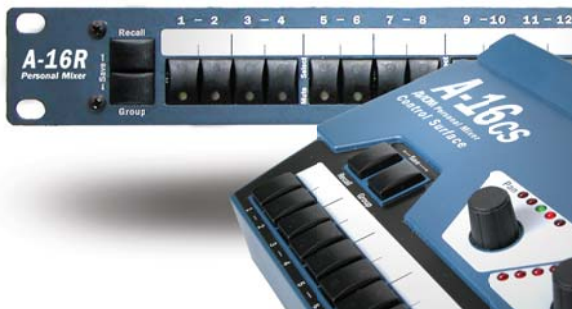
But there's also a risk: musicians aren't engineers, and a lot of musicians don't understand the details of what makes a good mix and how to stay out of trouble. Particularly when wedge monitors are used, many engineers are understandably reluctant to hand the task of monitor mixing entirely over to the performers. In many situations, the ideal system would allow performers to tweak and customize each mix, while engineers retain final control over the results.

Aviom's Pro16™ Monitor Mixing System was designed with these issues in mind. The system provides several different ways for engineers to provide meaningful support to performers and, perhaps more importantly, to exercise critical control over sound levels and overall sound quality.

SYSTEM OVERVIEW

The Pro16 Monitor Mixing System begins with 16 channels of audio from the monitor or FOH console—any combination of direct outs, aux sends, or submixes—connected to an Aviom input module. Input devices include the 1U AN-16/i (16 line-level inputs) and the 3U AN-16/i-M (which accepts line or mic level), as well as cards for direct output from certain Yamaha and DiGiCo digital consoles.

The Aviom input module converts the audio to digital and transmits it to an unlimited number of personal mixers over Cat-5e cables via Aviom's exclusive A-Net™ protocol. Each



The A-16R Personal Mixer gives engineers final control over each monitor mix, while performers can edit their mixes with the A-16CS Control Surface.

Personal Mixer can create a customized stereo monitor mix, with per-channel control over volume and pan, as well as master volume and tone controls. Each mix is completely independent, so changes made to one have no effect on any others. The audio output of each Personal Mixer can be sent to headphones, wireless transmitters, in-ear monitors, wedges, or an amp.

LIMITING VOLUMES

The most obvious concern with musicians controlling monitor levels is that they'll just keep turning things up louder and louder. The worst-case outcome is, of course, feedback. No engineer wants to be blamed for feedback, especially when there's no way for him to control it.

There are a few points to remember here. First, Aviom's experience is that, while musicians typically ask monitor engineers for "more guitar" or "more vocals" or "more something," when they actually have control of the mix, they tend to choose lower volumes and to mix by subtraction. Secondly, the Pro16 system provides several ways for an engineer to place a ceiling on volumes. With properly set gains and master volumes, feedback can be reliably eliminated.

CONFIGURED FOR COLLABORATION

Beyond that, however, the Pro16 Monitor Mixing System is designed to allow engineers and performers to work together to produce perfect customized monitor mixes and an outstanding overall sonic picture. For ensembles and events with monitor engineers or where FOH engineers are available to devote some attention to monitors, the rack-mountable A-16R Personal Mixer, combined with the A-16CS Control Surface, is an ideal solution.

All of the audio for a given monitor mix is handled in the A-16R, which is typically placed off-stage or at FOH. In this arrangement, performers use the A-16CS Control Surface as a remote controller, connected to the corresponding A-16R with a Cat-5e cable (up to 200'/60m). Both the A-16R and the A-16CS provide complete control over channel volumes and pans, presets, tone, and other mixing functions. This allows the performer to customize a mix and recall presets, while the engineer also retains complete control over all monitor mixing functions. Thus, from the rack of A-16Rs, an engineer can listen to a performer's mix, help him or her dial it in, save and recall Presets, or even kill a mix that's too hot.

The A-16R also includes stereo insert points, so feedback suppressors, limiters, EQs, and other effects can be easily patched into the signal stream to provide additional protection from feedback or to add beneficial sound coloring.


Perhaps most importantly, the A-16R has a master volume

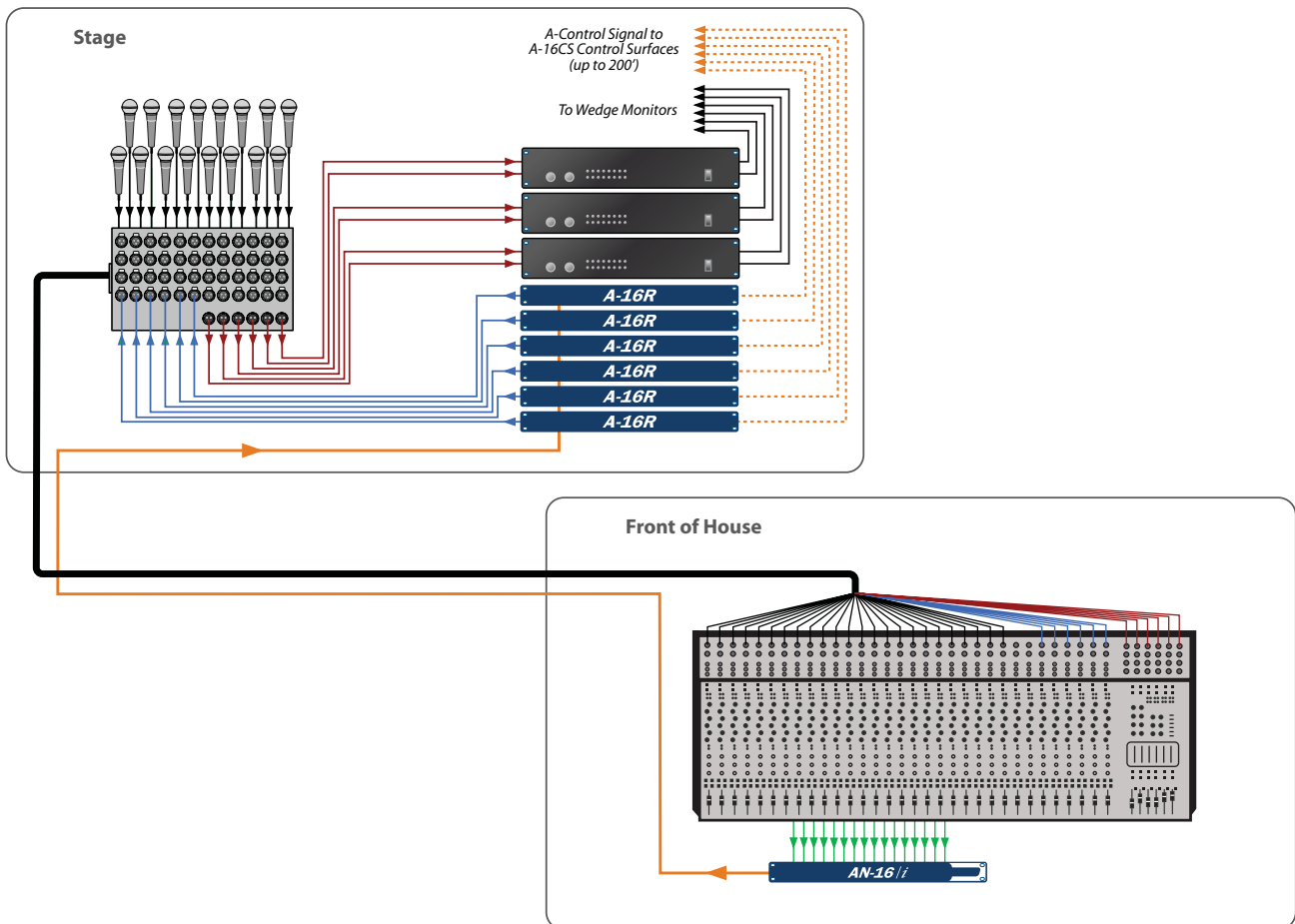
control which has priority over the master volume on the Control Surface. By setting the A-16R master volumes at reasonable levels, engineers can define a safe maximum volume for every monitor feed. Performers can turn their mixes up and down and modify content, but they will never be able to exceed the volume limit set by the engineer at the A-16Rs.

PLACING EVEN MORE CONTROL AT THE CONSOLE

In situations where placing the rack of A-16Rs near the engineers is not feasible because of space restrictions or distances, engineers can still retain control over the monitor mixes by patching the audio outputs of the A-16Rs back into the main console (via the analog snake) and assigning those channels to unused aux outputs (such as those which would be used for monitors in a traditional setup). These outputs are sent out to effects and the amps. With this configuration, the engineer can control the level of a mix with a fader on the console and can add content to the mix with the console’s aux section controls. Performers can still customize their mixes using the Control Surfaces (though

they cannot change the level of content added by the engineer through an aux at the console). See diagram below.

Aviom’s Monitor Mixing System gives performers the ability to modify their own mixes without introducing chaos on stage or putting musicians out on their own with no engineering support. With A-16Rs placed at the FOH or monitoring console, and A-16CS Control Surfaces on stage with the performers, both performers and engineers can control the content of a given monitor mix, ensuring that performers get what they want and need, and that engineers are still able to produce the outstanding sound they’re responsible for. With no loss of control. 



The engineer has control: Mix outs from the A-16Rs (shown in blue) on stage are fed back to channel inputs on the House console. These inputs are then assigned to Aux sends and sent back to the stage (shown in red) to feed the monitor amps. Performers use A-16CS Control Surfaces to customize their mixes.