Challenging Digital

A case for analog broadcast mixers

What's in a Typical Radio Studio?

A typical radio studio contains a number of audio sources — microphones, phone-in feeds, playout system feeds from PCs, streaming content from the internet, and external feeds from outside broadcasts and news providers.

All of these are mixed together using a broadcast mixing console, which also provides monitoring, communication and control facilities.

Now Consider…

> The vast majority of all content originates from microphones — **analog devices**. FM broadcasting is an **analog process**. We listen on loudspeakers — **analog devices**. Our ears are **analog receptors**.
>
> 99.9999% of radio listeners would not be able to tell whether they were listening to programs which originated on analog or digital studio equipment.

But Surely PCs are 'Digital' Devices?

True, the PC allows audio content to be converted into digital files, which can be 'recorded' onto a mass storage device and recalled as required. The main advantages of PCs include large volumes of content conveniently stored and accessed, pre-made playlists, and continuous automated playback.

PCs provide playback in both digital and analog formats.
There is no reason why the benefits of PCs cannot be fully enjoyed in an 'analog' studio.

In fact, a typical studio will have 3 or more PCs, for playback of pre-recorded content, access to internet content (e.g. YouTube), and access to comms apps such as WhatsApp, WeChat, Skype etc.

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Digital Mixers: Benefits and Drawbacks

Benefits of a Digital Mixer

- Sources can be freely allocated to different ‘channels’ on the mixer, meaning individual users can have different source positions at different times
- It is not necessary to have a dedicated channel per source — an 8-channel mixer could have many more sources available, allocated as required
- Various parameters applicable to individual sources and users can be stored and recalled, such as gain settings, EQ and dynamics processing, default routing, control behaviour

Drawbacks of a Digital Mixer

- Construction is generally based around a block of processing electronics connected to the control surface — **any single component failure can render the whole mixer inoperative**
- Control surfaces are sometimes modular, but often in blocks of 4 or 6 channels — a failure in one channel renders 4 or more channels inoperative
- Far fewer people understand digital audio and electronics — finding an experienced maintenance engineer can be a real issue
- Digital mixers rely heavily on bespoke software
- Many use highly specialised chips, unique to individual manufacturers, leading to shortages and delays in providing spares — analog mixers use parts readily available from multiple suppliers
- Complex ‘configuration’ is often only available from manufacturers, so set-up and future changes can be expensive — analog mixers work ‘out of the box’

In Summary

Having supplied hundreds of digital mixers to customers all over the world, only a tiny percentage of the more sophisticated users actually bother to take advantage of the ‘digital’ benefits.

Unless you need (and can afford) flexible channel assignment or the ability to create and recall individual user settings … you will be far better off with a modular analog mixer … which will also cost a lot less, both in outlay and operation!

And finally, a well-designed analog mixer will out-perform a mediocre digital product, with many audiophiles preferring the analog sound — hence the rise in popularity of vinyl records!

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