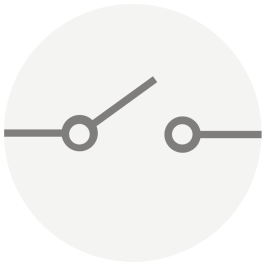
MicroVideo

About Microvideo switching technologies

The heart of Series 300



2 x1 switching should be the simplest subject. However, it is an area of broadcast that is open to abuse and misinformation. At Microvideo we try to be very clear. There are four types of switching which are in common use: relay, electronic, clean and seamless.

Relay

The simplest and lowest cost 2 x 1 switching method. Often used in bypass applications, relay switching is an electromechanical device. Relay switches do not switch cleanly, they will cause picture jump even with co-timed signals. Although sometimes used in ASI streams, they are not suitable, potentially causing severe disruption and possible hanging of the receiving mpeg decoder. Should be avoided where possible except in monitoring and bypass applications.

Electronic

Electronic switches switch the primary input in accordance with SMPTE switching standards, i.e. in SDI they switch on the relevant line in the next frames VBI, they do not, however, account for timing of the backup feed. In the event that both signals are perfectly synchronised the changeover can be clean, but in the more likely event of mistimed signals, the changeover will disrupt the picture being transmitted.

Clean

Clean switches will, as per the electronic switches, provide a switch in accordance with SMPTE switching standards. ‘Clean switch’ add-ons provide some scope for timing adjustment to compensate for mistimed signals and can therefore provide a clean switch. ‘Clean switches’ (and indeed electronic switches) are only clean on a manual changeover and will not provide a clean changeover should the primary input fail (or be accidently removed).

In the event of an emergency changeover standard switches (clean or electronic) look for consecutive missing field flags (normally 4 or 8 fields) and in the event of a loss of signal the picture will be missing for the duration of those fields, consequently the viewer will see a significant picture disturbance and normally a green flash.

There is no such thing as clean switching in ASI (see below)

Seamless switching

Seamless switching works exactly as a clean switch in manual mode, but on loss of video it switches on a number of parameters such as missing line flags (rather than field flags), there will be an inbuilt delay of 5 lines, to allow a 100% clean ‘forced’ changeover, although this se8ng is normally user adjustable

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In ASI there is a similar approach; however, ASI streams generated, even from the same source, on different encoders, will have fundamental differences in how the packets are constructed. The larger the difference the greater the disruption in the picture, hence the term ‘near-seamless’ when discussing ASI changeover modules.

Microvideo are one of the market leaders in switching technologies and specifically seamless switching, which was pioneered by Microvideo as far back as 1999.