



APPLICATION

VIDEOTEK
INC.

243 Shoemaker Road, Pottstown, Pennsylvania 19464 / (610) 327-2292 FAX (610) 327-9295

Back to the Basics

I promised, as a result of many comments from you, to take some time to cover the basics. It's tough to decide where to begin, but I'll start with sync and move on from there. Some of these subjects might demand slight deviations, but I will make every effort to return to the main path. The risk is that some readers may be offended with the simplicity of the subjects covered. To those, I apologize. To the rest, let's learn some video basics.

Sync

Television uses sync for much the same reason that film uses sprocket holes. The only way to control either is to use a known reference, like time, and something attached to the particular picture. Film only has plain old sprocket holes. Television has many types of sync signals, with different purposes. Coordination between cameras and display monitors is accomplished by vertical and horizontal sync. These two are almost always combined into what is known as composite sync. This combined pulse, when added to video, is that which turns video into composite video. Composite sync is used often in current video systems. A second sync signal is called blanking but is actually composite blanking. Blanking is used primarily as the control to turn the electron beam on or off in picture tubes and imaging tubes. Blanking also has both a vertical and a horizontal component. Neither component is a signal which is separately available in a system. From the viewpoint of someone watching a monitor, blanking is the signal which blanks (or turns off) active picture at the end of a line and turns it back on at the beginning of the next line. Composite blanking is not often used in current video systems.

Color Reference

Color reference is the third separate sync signal. This is the signal of many names. Burst, 3.58cw (continuous wave) and color burst are a few, and they all mean the same thing. Color reference is used only in color television. It is used to coordinate the hue of a monitor with the hue of the originator. Color reference is also not in common use today, but when used, it almost always is used with both blanking and composite sync.

Other Sync Pulses

Burst flag is a speciality sync signal with almost no external system application today. The purpose of this signal is to indicate the location where the color reference is inserted in a video signal. The Color Field Identification signal is the latest addition to the sync signal family. This pulse is a marker which locates the first field of the four field color sequence. It then appears only once every four fields, or only 15 times per second. CFID, as this pulse is known, is used in systems with full bandwidth (1") video tape recorders, and is helpful in making SC/H phase measurements.

Two near ancient sync signals, which have no system applications in this age are Horizontal and Vertical drive pulses. These pulses were used as separate drives to cameras for sweep control. They are very similar in timing and duration to Horizontal and Vertical sync pulses. Cameras and monitors both use these pulses, or something close, but they generate them internally.

The next issue will contain timing charts which show the relationships of all of these pulses to each other and to the video you see on a waveform monitor. So hang on to this issue and wait for the next one for the rest of the story. As always, write or call Mark Everett with your questions and comments.