HOW TO MAKE MAXIMUM USE OF YOUR VIDEO SIGNAL

A GUIDE TO VIDEO CONTACT CONTROL AND TELEMETRY

Everywhere you look today, there is a video signal being used for one reason or another. These signals are transported around using several methods. Some are RF (Radio Frequency), some are Digital Compressed Data streams, but the majority of them are Base-Band video signals.

A Base-Band video signal is the type of signal that usually comes out of your VCR or camcorder on an RCA connector. In professional equipment the connector of choice is the female BNC connector.

The Base-Band video standard used in the USA and Canada is the NTSC (National Television Standards Committee) color television video standard. The NTSC video standard was adopted by all TV broadcaster and video equipment manufacturers to bring color television to the marketplace and to maintain compatibility with Black and White TV sets.

The Vertical Interval (V.I.) is the part of the video signal that tells the monitor to start drawing a new screen. It is made up of special SYNCHRONIZATION pulses with no picture elements. This part of the video allows special command and control signals to be added in a way that does not conflict with the picture information.

The V.I. has 20 lines or places for this information. These lines are numbered lines 10 through line 20, even and odd fields. There are two fields with ten lines each in them. You can put a great deal of information on those 20 lines. What ever you put in the V.I. will remain there over any analog transmission system and will be recorded along with the video. You can also use the V.I. to bring information back up the video line, this is referred to as telemetry or tele metering, measuring from a distance.

When you record then play back the video, your information will still be on the V.I. line and can be used to control contacts every time the video is played. The control timing with respect to the picture information will remain exactly the same as when it was recorded.

So what can you do with your V.I? Most broadcasters use the V.I. to send signals down the line to verify the transmission quality of their video signal, or to control such things as AD insertion or program switching.

It can also be used to send signals along with the video to control anything that can be controlled by a switch. Like turning on the air conditioning unit in the transmitter shack, or to control the shut down of a low power transmitter. Or maybe control a program switch to route a video signal by remote control. The uses for contact command and control are only limited by your imagination.

You can also use the V.I. to report back information from a remote site. You can insert telemetry signals at a transmitter site and recover them anywhere the TV signal can be received. This will give you vital feedback information from any remote transmitter site.

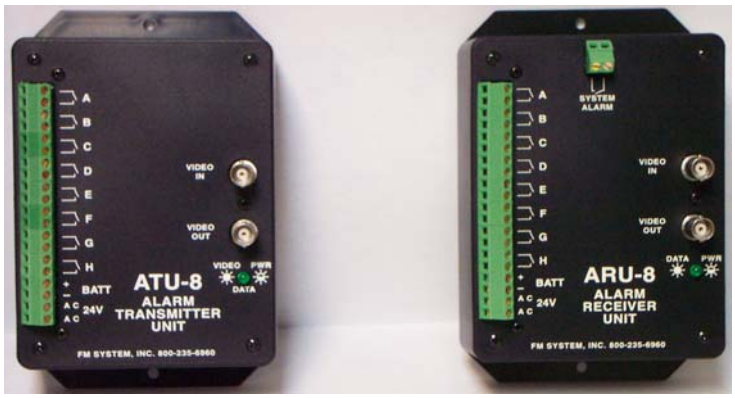
Another use is to mark video segments with control signals that will be used later in automated systems for switching or special actions. When the video is run the actions are automatically executed by the control information in the V.I. Pre-roll and Salvo switching commands can be recorded on the leading and trailing edges of program information to facilitate automatic AD insertion. Any control function that is associated with video can be programmed onto the videotape for later operation.

CCTV Closed Circuit Television cameras used for security have the very same V.I. so this technology can be used to control gates, lights, fence motion detectors or anything else that needs the delivery of contact information. Some applications use the V.I. to send motion detector signals back to the DVR (Digital Video Recorder) to switch the recorder to a particular camera when motion is detected at that camera.

Since the contact closure information travels with the video, there is no need to run wires along with the video cable. This is especially useful when adding motion control or door control after the cabling has been done, when it's difficult to go back and pull more wires. You can just use the same video cable for all the contacts and the video picture too.

The equipment that makes command control, and telemetry possible is called ATU-8 (Alarm Transmitter Unit) and ARU-8 (Alarm Receiver Unit). One unit goes at each end of the video path. If you close a contact on the ATU-8, a relay on the ARU-8 will close. The contacts on the receiver mirror the operation of the contacts you supply to the transmitter. Each ATU-8 is capable of sending eight separate control contacts per unit. If a power failure should occur the units will pass the video signal. If only two contacts are required, the ATU-2 and ARU-2 units have two contacts for command, control and telemetry.

ATU-8 ARU-8



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