

Using the TCS “TVC” Tobin Videoframe Controller

Applications

The TVC is used for double-system sound filming, for later transfer to video tape on a Rank or Bosch film scanner, in conjunction with audio on DAT (digital audio tape,) CD (compact disk) or Hi-Fi video tape such as 8mm, Hi-8, VHS, etc. Since the speeds of the TVC are the same as the U.S. NTSC video transfer speeds, that is 23.976 or 29.970 FPS (frames per second,) you are working in real time both filming and in the transfer. The audio is self-resolving and will play at the same speed as it was recorded also, so synchronization will be maintained without the need to correct the speed of the audio reproducer with expensive time code equipment. It is of course still necessary to use a clapstick to establish the start point. Since general purpose audio equipment is usually not adjusted as precisely as film sound crystal sync equipment, the best sync may result when playing back on the same DAT or CD machine as used in the field.

The 23.976 and 29.970 speeds are not HMI compatible, so if filming with regular HMI or fluorescent lights a slow pulsation of exposure may be noticed in the film. This can be avoided by using daylight, tungsten lights, or flickerless HMI lights.

The TVC is also useful for filming from video monitors. Use the 29.970 speed, and ideally your camera should have a mirror shutter with a 180° shutter opening for the narrowest shutter bar. When you start filming, push the “Phase” button to move the shutter bar to the bottom or other desired place on the monitor screen. (If using an Arri 16-BL, the mirror shutter has an extra stripe on it that can be confusing. The true shutter bar is the narrow one; disregard the wider bar, which is the mirror stripe.) For filming from computer screens, every one is a different speed according to the whim of the video card designer, so you should instead use the Milliframe Controller.

Attachment

Connect the DE-9 end of the cable to the TVC. Plug the other end into the camera. Cables are available with several connectors to suit the various models of cameras and crystal controls.

If your camera is an Arri 16-SR High Speed, it is necessary to change a jumper inside the TVC to get the correct speeds. Remove the four lid screws and the lid. While grasping the metal case to equalize charge, pull the jumper straight out and re-attach it in the “16SR-HS” position. Replace the lid and lid screws. To restore normal operation, replace the jumper in the “Normal” position instead.

Operation

There are two user controls on the front of the unit. They are flush or recessed to prevent accidental actuation.

Push the speed switch to the left for 23.976 FPS and to the right for 29.970 FPS. If filming from a video monitor, push the "Phase" button until the phase bar is where you want it, and then release it.

A green pilot light on the TVC shows that power is being received from the camera. The Sync Alarm light on the camera will show whether the desired speed is being maintained.

Additional Information

Apart from the Normal / 16SR-HS jumper there are no user adjustments inside. Do not disturb the trimmer capacitor used for making a fine adjustment of the crystal frequency, unless you are properly equipped to do so. The pilot light is in series with the power input and does not consume any extra current, so do not disconnect it.

To make up your own cables, the following pins on the DE-9 connector are used for the following purposes: Pin 6 is + Power, 5 & 9 and the connector shell are Ground. Other pins are 5 V CMOS logic, pulses per frame as shown: 1=25 PPF, 2=50PPF, 3=100PPF, 4=200PPF, 7=400PPF, 8=3200/1600PPF according to the jumper. These connections are the same as on the TMC-55Aa Milliframe Controller.

The only service adjustment is the crystal trim setting. Connect a frequency counter to 74HC4060 pin 9 and ground. Adjust the trimmer for 6137.862 kHz or 7672.328 kHz ± 20 Hz according to the crystal marking. The lower frequency crystal must have jumper J6 installed, and the higher one has jumper J7 installed.

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