The general features of the HD Video Coordinate Digitizer (VCD) have been tailored to meet the requirements of the Weapon Impact Scoring Set (WISS) for NAVAIR and ACC training ranges.

The primary function of the VCD is to quantize points of interest on a split screen video raster. While the VCD will work with any SMPTE 292M (720p/60 or 1080i/60) or 424 M HD-SDI (1080p/60; 3G) video streams, many of the features rely on specialized metadata of the input stream to accomplish the intended function. This specialized metadata and video splitting function is performed by the ITS 6316 Video Concentrator Multiplexor (VCM).

When used with the VCM, the VCD recognizes any video splits present and will auto size the Dynamic Control Cursor (see 3.1.1 Dynamic Control Cursor Generator (DCCG), page 6).

There are three cursor generators of two types: one Dynamic Control Cursor Generator (DCCG) and two Computer Controlled Cursor Generators (CCCG) (see page 7). Other features include insertion of a user generated color alphanumeric message and a time message read from the applied video Microsecond Timestamp.

The specialized metadata provided by the VCM are wrapped in type 02 KLV packets as defined by SMPTE 291. There are at least two and at most three such packets in the VCM output SDI stream. The first packet is the Microsecond Timestamp as prescribed in Motion Imagery Standards Board standard 0605.3. The second packet is a custom WISS Stripe Parameters packet (see Appendix A: WISS Stripe Parameters, page 45 for more information on this packet).

The Microsecond Time stamp is used as the time reference for all VCD operations. The Stripe Parameters packet is used by the VCD to determine the number of splits, the location of the bottom of each split, the number of lines of each split and the first active pixel of each split. These parameters are acted on by the 6314 to control the DCCG and identify the stripe number and pixel number on the Trigger event (measure). Up to 15 stripes may be present in the input HD-SDI video stream delivered by a VCM.

The VCD also includes a digital frame recorder (see 3.4 Digital Frame Recorder (DFR) page 9) that can hold up to 24,000 frames of 720p video, 11,000 frames of 1080 video. The DFR continuously records until set to playback mode. In playback mode, video may be single stepped, searched at 1/16x, 1/8x, 1/4x, 1/2x, 1x, 2x, 4x, or 8x speed either forward or reverse.

Additionally the unit provides an analog/contact closure interface to a joystick and an Ethernet TCP/IP computer interface.

The VCM is housed in a 19" 2U rack mount chassis and is powered by 100 to 240VAC 50/60 Hz.

1.0   SPECIFICATIONS

1.1 Video In

Standard SD/HD/3G SDI digital video per SMPTE 292M and 274M. Formats supported are:

720p at   29.97, 30, 59.94 and 60 FPS
1080i at 29.97 and 30 FPS
1080p (3G) at 29.97, 30, 59.94 and 60 FPS

1.2 Mon Out

Identical to input HD-SDI video.

1.3 Aux Out

Identical to input as modified with text overlay set by the operator. Output may be either echo the input video our the current output of the DFR

1.4 Ethernet Port

Standard TCP/IP protocol, 10/100 Mbit/sec. Factory default is IP address 192.168.150.90 Telnet port 23 access.

1.5 Serial Interface

EIA RS-232C, Asynchronous, 8 data bits, 1 start bit, 1 stop bit, no parity, no flow control supporting baud rates up to 115.2K baud. Factory default is 19200 baud. The baud rate may be changed via the RS232 or Ethernet ports with provided commands or from the front panel using the LCD/menu and keypad.

1.6 Joystick Input

Fully compliant with PA-WISS-012-94 and contains a three channel A/D (X, Y and Z) input. Also five discrete inputs: negative true TTL or contact closure to ground. The port provides drive voltages to the joystick potentiometers.

1.7 VCD Interface

Not used

1.8 Alphanumeric Characters

A maximum of 18 to 36 lines of 40 to 120 characters depending on video input format and character size selected. Individual characters are described on a 7X9 pixel matrix. Color is set via front panel keypad or remotely via communication ports.

1.9 Keypad

Numbers 0-9 plus # and * keys

1.10 Package and Environment

Size: Standard 2U, 19-inch rack mount.

Weight 10.5 lbs

Operating Temperature: 0°C to 50°ambient

Humidity: 85% non-condensing

1.11 Power Input

100 to 240VAC, 50/60Hz 1 Φ; 10 watts