

FEATURES

- **Synchronizes time to external IRIG B reference or internal GPS receiver**
- **Captures time within 10 μ sec of each vertical sync event in an SDI video stream.**
- **Records time in KLV packets in SDI VANC line 9 in accordance with MISB 605.3.**
- **Records current position at each vertical sync event into a second MISB 605.3 compliant KLV packet**
- **Accepts SD, HD and 3G SDI video sources per SMPTE 259M/292M/424M**
- **System auto-selects the time reference, IRIG if present or GPS when locked.**
- **Small MIL-STD-810E/MIL-STD-461 qualified package**
- **Operates with 9-36VDC vehicle power**



DESCRIPTION

The ITS 6045G-HD is a single purpose device which will record time to 1 μ sec resolution and $\pm 5 \mu$ sec accuracy on each vertical sync event of a SMPTE 259M, 292M or 424M SDI video stream. The time data is encapsulated in a MISB 605.3 compliant KLV packet impressed on VANC line 9. Additionally, when locked to GPS, the 6045G-HD will also record latitude/longitude and height data on each vertical sync event and encapsulate this information into a second KLV packet also compliant with MSIB. The position data meets a 5 meter CEP with a 95% confidence.

When a valid 4:2:2 encoded SDI video stream is connected to the encoder, it will decode and automatically detect 480i, 720p or 1080i or 1080p (3G) video formats at NTSC or PAL frame rates. The 6045G-HD will begin forming and inserting KLV packets immediately after synchronizing with the SDI stream without any operator intervention.

At turn on, time begins at zero days, hours, minutes and seconds and will count from there in microsecond increments until it is either locked to GPS or a externally applied modulated IRIG B. As prescribed by MISB 605.3 a lock bit will indicate whether time is synchronized to a valid source.

The 6045G-HD is housed in a small (7.5"x4.25"x2") aluminum enclosure weighing only 2 pounds. While a new design, this enclosure, power supply and system shielding design has been tested as a part of our 6115G-S product and has been shown to meet MIL-STD-810E for Cat 4 operational shock and 20g vibration and MIL-STD-416E for susceptibilities and emissions.

The ITS 6045G-HD may be used with an ITS 6980G-HD or other MISB compliant decoder at the destination end to decode and display in the output video the metadata time and position information previously embedded in each VANC.

MODEL 6045G-HD

HD-SDI METADATA TIME/POSITION ENCODER

SPECIFICATIONS

Video In	Standard SD/HD/3G SDI digital video. Formats supported and auto-detected: SD 480i at 29.97/30 Hz 576i at 25/50Hz HD 720p at 60, 59.94, 50, 30, 27.97, 25, 24 and 23.98 Hz 1080i at 60, 59.94, 50 Hz field rates 1080p (3G) at 60, 59.94, 50, 30, 29.97, 25, 24 and 23.98 Hz frame rates
Video Out	SDI video stream identical to video input; No overlay into the viewable video area whatsoever.
KLV Inserted Time Resolution	1 μ sec; 64 bit word in microseconds from the UNIX epoch of 1 January 1970 per MISB 605.3
KLV Position Accuracy	Inserts Latitude, Longitude and height to a 5 meter circular error probability (CEP) @ 95% confidence
IRIG B Reference Input	IRIG B standard serial time code (IRIG Standard 200-98). Input level 500 mv peak-to-peak to 15 volts peak-to-peak with modulation ratio from 2:1 to 3:1. Code formats accepted are B120, B121, B122 and B123.
GPS Performance	Channels: 12 Parallel channels, tracks all satellites in view Time-to-first-fix <25 seconds typical (warm start), <180 seconds typical (cold start) UTC Time Mark Synchronized with Global Reference Standard Reacquisition: 2 seconds typical Dynamics Mode: Set to airborne at the factory. Other settings (fixed, walking, land vehicle and marine) are available, but must be specified at the time of order. Timing accuracy varies from <25nsec (Fixed) to <100nsec (In Motion) Datum: WGS 84
GPS Timing Accuracy	Locked; airborne < \pm 100 nanosec <2.5 x 10 ⁻⁶ without discipline; drift <0.3 x 10 ⁻⁶ ; <30 ms per day after 24 hours of GPS locked disciplining Not locked 1 x 10 ⁻⁹ @ 1 second 1 x 10 ⁻¹⁰ @ 100 second 3 x 10 ⁻¹² @ 1 day
GPS Antenna	Supplied: Active patch magnetic mount Antenna; 5 VDC power provided via antenna cable. Gain: 26 db \pm 2 db. Noise figure: 1.5 db max. Antenna interface is short circuit protected. General requirement: active antenna with no more than 48 db of gain. For use with existing antennas powered by other equipment, use a blocking splitter.
Meta-Data Encoding	Time and position are recorded in separate KLV VANC ancillary packets of the input SDI stream IAW MISB STD 0605.3 and NATO STANAG 4609 ADEP-8
Package	Aluminum enclosure, 7.5 inches long (including mounting flanges), 4.27 inches wide and 2.00 inches high..
Weight	2 lbs
Temperature/Humidity	-20°C to 60°ambient / 95% non-condensing
Environment	Shock & Vibration per MIL STD-810E: Shock – Method 516.5, Procedure I, 20g all axis, Vibration – Method 514.4, Cat 4. EMI per Mil-STD-461E: CE102, CS101, CS114, CS115, CS116, RE102, RS103
Power Input	9-36 VDC , 10 Watts



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