

FEATURES

- **TWO, FOUR, SIX, EIGHT OR TEN INDEPENDENT VIDEO CHANNELS (RO MODELS ARE 6,8 &10 2U VERSIONS ONLY)**
- **AUTO-DETECTS AND FORMATS INSERTION FOR 480I, 576I, 720P AND 1080I/P FOR NTSC AND PAL FIELD/FIELD RATES**
- **SYNCHRONIZES TIME <35NS OF THE GPS TIME WITH INTERNAL GPS RECEIVER OR $5\pm 4\mu\text{s}$ OF AN EXT. IRIG B.**
- **WRITES/READS MISB MICROSECOND TIMESTAMP**
- **OVERLAYS TIME; LOCAL & MISB TIMESTAMP; RESOLUTION FROM 1SEC TO $1\mu\text{s}$.**
- **INSERTS UP TO 3200 CHARACTERS OF ALPHANUMERIC DATA ON EACH CHANNEL.**
- **INSERTS COLOR MOVABLE AND BORESIGHT CROSSHAIRS IN INTO EACH VIDEO CHANNEL.**
- **INSERTS UP TO 2 CUSTOMIZABLE KLV METADATA PACKETS/FRAME (OPTION) ON EACH CHANNEL.**
- **REMOTELY CONTROLLED VIA ETHERNET PORT AND RS-232C SERIAL PORT.**
- **DETACHABLE KEYBOARD, FRONT PANEL LCD DISPLAY AND CONTROLS (NON-RO MODELS)**
- **1U, 2U & 3U RM CONFIGURATIONS POWERED BY 115/240VAC 50/60 HZ** ♦



The Model 6055C-nxHD is a two, four, six, eight or ten channel (n) video text-time-metadata inserter. It can accurately overlay GPS (the x option) or IRIG B time, GPS position (when present), text, a fixed and movable crosshair in a range of colors. With KL option, the unit can insert up to two KLV metadata packets/frame of your design on any HD-SDI video stream. Time is sampled precisely on each vertical sync to an accuracy of $3\pm 2\ \mu\text{s}$ with respect to the time reference. The 6055C-nxHD may also be commanded to insert time (or read) in VANC ancillary metadata packets formatted as a Microsecond Timestamp in accordance with MISB 605.3. Each video channel operates independently and can timestamp incoming video, insert channel specific metadata and overlay text separately and synchronized to their respective video sources. Any channel will automatically synchronize to 480i, 576i, 720p or 1080i/p ITU BT.709 4:2:2 imaging format 25, 29.97,30,50 and 59.94 and 60 fields/frames per second. Time and text may overlaid anywhere in the active video area and may be set to one of 8 colors. End-to-end processing introduces a latency of less than 2 $\mu\text{seconds}$. The time reference is derived from internal GPS receiver (option for RO units) or external IRIG B time code source. If the GPS or IRIG lock is lost the unit continues to run on an internal disciplined crystal clock. A Stratum 3 option reduces free-run time drift to less than 5 $\mu\text{seconds}/\text{hour}$.

The 6055C-nxHD may be remotely controlled through either an Ethernet or RS-232 port. The remote command set offers full setup, overlay and KLV pack control. A detachable keyboard provides for local control of the unit as well as a local set up menu. The “-RO” versions of each delete the detachable keyboard and replace the front panel with a blank having only a power switch (3U version shown).

The “CS” option adds a tri-level sync (TLS) for SMPTE 296M (720 formats) or 274M (1080 formats) and a TTL sync output occurring once per frame at vertical sync. These signals are phase locked to the time reference (GPS or IRIG). The TTL output may be programmed for 10 fps, 100 and 200 fps frame rates in addition to the standard SMPTE rates.

The KL option adds the ability and commands to embed in SD-HDI video up to two additional SMPTE 291M type 02 KLV metadata packs. **Software Toolkit** is included to facilitate authoring of KLV user data content, monitoring, decode and display. The ITS **DataConcentrator**® may also be used with the 6055 to assemble samples of data acquisition systems, loggers and sensors into packets organized as designed with the **KeyTemplate**®, a part of the **Software Toolkit**.

The KT option (available in the 6, 8 and 10-channel systems) adds a 14 21 bit (programmable) interface for collection of azimuth, elevation and range data from a Kineto camera mount or other compatible device. Each video channel independently reads the current value on detection of vertical sync.

SPECIFICATIONS

| | | | |
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| Video In | SMPTE standard SD/HD/HD-3G SDI digital video. All formats supported and auto-detected: SD 480i at 29.97 Hz, 576i at 25 Hz; <i>Metadata is not supported w/SD</i> (SMPTE 259M video) HD 720p and 1080p at 60, 59.94, 50, 30, 29.97, 25 Hz, 1080i at 30, 29.97 and 25 Hz; 1080p/60 SMPTE 424M (3G) | | |
| Video Out | SDI identical to video input or recorded except with graphics, annotation, and metadata as added. Reclocked and buffered to drive up to 100 meters of Belden 1694 or equivalent low-loss coax. | | |
| Time Overlay | Resolution selectable from 1 sec to 1 μ sec in 7 steps, 1.0, 0.1, 0.01, 0.001 seconds, 100, 10, 1 μ sec | | |
| GPS (option for RO units) Timing Accuracy | When Locked After Fix | Drift from last synchronized time when NOT locked | |
| | | After 24 hours of GPS lock | After >20 min of GPS lock w/S3 Option |
| | ± 300 ns RMS @ 1 sec | <540 μ sec/hr | < 5 μ sec/hr |
| | ± 30 ns RMS @ 100 sec | <1300 μ sec/day | < 100 μ sec/day |
| GPS Position | Inserts Latitude, Longitude and Altitude. Position accuracy : five meters circular error probability (CEP). When using the KLV metadata option, current Lat/Long/Altitude can be embedded in a KLV payload. | | |
| GPS Performance | 12 channels, track all satellites in view; Time-to-first-fix <25 sec (warm start), <180 sec (cold start) Reacquisition < 3 sec | | |
| GPS Antenna | Active Patch Magnetic Mount Antenna, 5 VDC via antenna cable. Antenna with 5-meter cable is included. | | |
| IRIG B Input | IRIG B (IRIG Standard 200-04). Input level 500mv p-p to 5 v p-p w/ mod ratio of 2:1 to 3:1, Formats B120 - B127. | | |
| IRIG B Output | IRIG B AM, IRIG B DCLS in B124 format. | | |
| Stratum 3 Option | Disciplined 10ppb oven controlled oscillator reduces unlocked drift to < 5 μ sec/hr | | |
| Metadata (STD) | Metadata Timestamp inserted or read in the vertical ancillary packets (VANC) of the SDI stream IAW MISB STD 0605.3.. A standard feature of all ITS HD-SDI text-time-metadata insertions and the 6520 Fusion Video Recording Instrument . | | |
| Metadata Custom Packs Option | 1 or 2 SMPTE 291M type 02 KLV packs w/user defined keys & content. Includes ITS KLV Software Toolkit (HD-SDI only). DataConcentrator ® available to collect data from devices (sensors, data acquisition systems, data loggers) connected to a PC and build KLV payloads for insertion. Metadata payloads may be formatted and overlaid during writing or extraction. Metadata may be output to a file and read with KeyRead ®, a part of the KLV Software Toolkit . | | |
| Ethernet Port | Standard TCP/IP protocol, 10/100 Mbit/sec, user settable IP, Subnet Mask, Gateway and port for control and receipt of metadata payloads. | | |
| RS232 Port | 9600 to 57K baud in standard steps. Does not support metadata payload insertion or extraction. | | |
| Alphanumeric Characters | From 24 to 32 lines of characters depending on video input format and size selection. Number of characters per line is 20, 40, 60, 80 or 120 depending on the input format and size selection. Individual characters are 7X9 pixel matrix. Selectable overlay colors of black, white, red, blue, green, cyan, magenta and yellow. | | |
| Crosshairs | 1 movable and one fixed for each channel. Movable and fixed can be set to three sizes and may be set separately to one of 8 colors (black, white, red, green, blue, cyan, magenta and yellow). | | |
| Camera Sync (option) | Tri-level sync IAW SMPTE 296M (720p/1080i) and SMPTE 274M (1080p); TTL strobe on each vertical sync. TLS rates may be automatically set based on the incoming video (each channel), or user set at strobes up to 200/sec. The TLS pulse stream is phase locked to the 6055C time master (GPS or IRIG). Timestamping can be directed to capture at the sync output instant rather than the received video stream. Offsets to this time are programmable in 1 μ s steps to achieve accurate glass-to-glass timing capture. | | |
| Package and Environment | Size | 19" Rack Mount 1U; 2-Channel , no Camera Sync (CS) option 2U; 2-Channel w/CS, 4-Channel with/without CS and 6,8,10 channel RO versions no CS. 3U; 6, 8,10 Channel with/without CS. | |
| | Weight | 8/12 lbs. | Temp Op -20°C to +60°/ Non-Op -40°C to +85° Humidity 85% non-condensing |
| Power Input | 115/240VAC 50/60 Hz <20 watts | | |

