

HD9010TM-IRIG

HD Time Code Generator with IRIG Reader



The HD9010TM-IRIG HDTV Time Code Master with IRIG-B Reader is a full function time code reader/generator system for SMPTE 292M (1.5Gb/s) high definition serial digital video. The HD9010TM-IRIG is a combination generator/reader for SMPTE 12M-1 Linear Time Code (LTC) and SMPTE 12M-2 Ancillary Time Code (ATC), a reader for IRIG-B code, and a generator/reader of Vertical Ancillary Data (VANC) packets containing the IRIG-B code. The HD9010TM also contains a high resolution character inserter that can burn the generator or reader numbers directly into the serial digital program output.

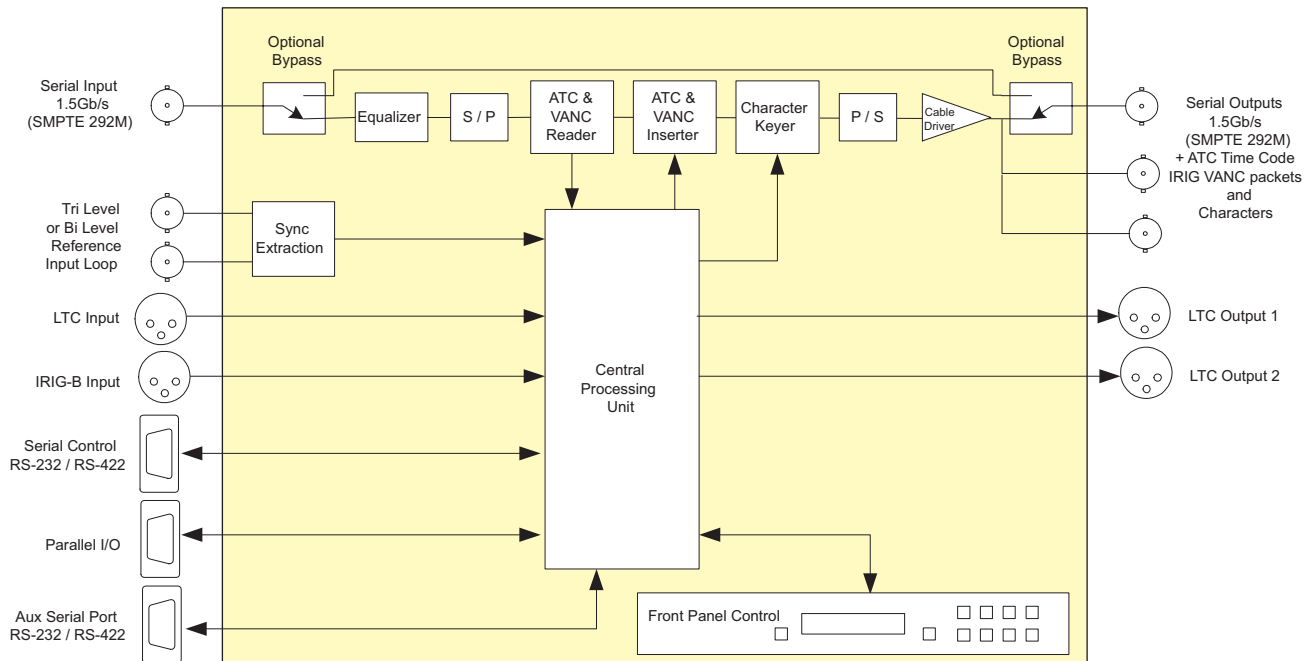
The HD9010TM-IRIG reads IRIG-B code commonly in use within the United States government agencies and supporting private industries and provides a display of days, hours, minutes, seconds and milliseconds in the character inserter. This IRIG information is inserted into a special ancillary data packet in the vertical ancillary data space (VANC) of the SMPTE 292M serial bitstream. This special VANC packet can be decoded by the HD9010TM-IRIG's VANC reader to allow you to encode the IRIG information onto a 'clean' video tape and then display the IRIG information later on playback.

The HD9010TM-IRIG SMPTE Time code generator is output as LTC and ATC and can also be slaved to incoming IRIG serial time code. The millisecond count will be converted to the closest frame number and can also be stored in the generator user bits along with the IRIG day of the year. In the continuous jam sync mode, the generator is slaved to the IRIG-B reader, and will follow code any discontinuities of the reader.

The generator may also be momentarily synchronized to the IRIG-B reader, and then it continues to increment normally regardless of the reader code. Momentary jam is the recommended mode when synchronizing to IRIG-B sources so that the resulting SMPTE time code does not contain discontinuities due to the different time bases of 29.97 frame per second video and real time of the IRIG code. In NTSC related video systems, the SMPTE generator should be operated in the Drop Frame counting mode when trying to synchronize the SMPTE generator to IRIG.

The HD9010TM-IRIG SMPTE Time code generator can also be slaved to incoming LTC or ATC, or can be set to free run. The generator may also be momentarily synchronized to one of the readers, and then continue to increment normally regardless of the reader code. The second LTC output normally follows the primary output, however the two generators can be operated at different frame rates to supply both 24Fps and 30Fps time code when used in a 1080p/24 environment.

The high-resolution character inserter provides independently positionable windows to show time and user bits for the SMPTE generator and readers simultaneously. When the IRIG or VANC readers are operating in the IRIG DAY mode, there are two independently positionable windows for each reader to show the IRIG time to millisecond precision and the IRIG day respectively. The choice of white or black characters with or without contrasting background mask is available.



►Features & Benefits

- Video formats supported: 1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60, 720p/50 and the 1/1.001 divisor versions where applicable
- IRIG reader reads 1kHz IRIG-B format sine wave amplitude modulated and pulse width modulated codes (formats B122 and B022)
- Encodes IRIG data and optional metadata in VANC packets on output video
- Reads IRIG data encoded in VANC packet from incoming video
- Generates SMPTE 12M-2 LTC and VITC ancillary timecode packets on output video
- IRIG CS-6 compatible serial data output to drive external IRIG display
- Reads SMPTE 12M-2 LTC and VITC ancillary time code (ATC) packets
- Insertion line for VANC packets programmable, read line auto detected
- One LTC reader and two LTC generators operate at 24, 25 or 30Fps nominal rate in accordance with SMPTE 12M-1 specification
- Generates to 24Fps and 30Fps LTC simultaneously
- SMPTE 12M-2 ↔ LTC translator
- Genlocks to NTSC/PAL color black or HD Tri-level sync
- Character windows for the reader and generator time and user bit data
- Windows can be positioned and turned off and on independently
- White or black characters on contrasting background
- Two character sizes
- Front panel display and control using menu system
- Parallel GPI/O and serial remote control
- Field upgradeable firmware as new features become available
- Optional input relay bypass for power failure bypass protection
- Optional dual power supply configuration

►Specifications

HDTV Serial Digital Video Input:

Standard: SMPTE 292M (1.5Gb/s), SMPTE 274M, SMPTE 296M, SMPTE 349M 1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60, 720p/50 and the 1/1.001 divisor versions where applicable software selectable or autodetect

Connector: BNC per IEC 61169-8 Annex A

Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable

HDTV Serial Digital Video Outputs:

Standard: SMPTE 292M, same as input

Outputs: 2 Program video with SMPTE 12M-2

Ancillary time code embedded and optional characters

Connectors: BNC per IEC 61169-8 Annex A

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 200ps nominal

Overshoot: < 10% of amplitude

Wide Band Jitter: < 0.2 UI

IRIG-Data: Embedded to VANC packet

Reference Input:

Type: Menu selectable - depends on video format NTSC or PAL Color Black 1V p-p Composite Bi-level sync (525i/59.94 or 625i/50) 300mV HD Tri-level sync SMPTE 292M (1.5Gb/s), SMPTE 274M, SMPTE 296M, SMPTE 349M 1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60, 720p/50, and the 1/1.001 divisor versions where applicable software selectable or autodetect

Connector: BNC loop per IEC 61169-8 Annex A

Termination: High Impedance loop

LTC Generator:

Standard: SMPTE 12M-1

Number: 2

Frame Rate: 24, 25 and 30Fps nominal

Connectors: 3-pin male XLR type connector

Level: Adjustable, 0.5V to 4.5V p-p

Rise Time: 40 ±10µs

Jitter: < 2µs

LTC Reader:

Standard: SMPTE 12M-1

Frame Rate: 24, 25 and 30Fps nominal

Connector: 3-pin female XLR type connector

Level: 0.2 to 4V p-p, balanced or unbalanced

Speed: 1/30th to 50 x play speed, VTR dependent

IRIG Reader:

Standard: IRIG 200-95 Formats B002 and B122

Connector: 3-pin female XLR type connector

Level: 0.2 to 4V p-p, balanced or unbalanced

Serial Remote Control:

Standard: RS-232, selectable baud rate

Connector: 9-pin female "D"

Control: Firmware upgrade

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D. (483mm W x 45mm H x 477mm D)

Weight: 8lbs (3.5kg)

Electrical:

Power: Auto ranging 100-240V AC 50/60Hz 40W

Safety: TÜV listed Complies with EU safety directive

EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

►Ordering Information

HD9010TM-IRIG HD Time Code Master with IRIG Reader

Ordering Options

+HBP Bypass Relay Protection

+2PS Redundant Power Supply