2XU VTR Compact Rugged Uncompressed Field Recorder

NEW-GVS9000 2XU HD VTR/DDR with Solid State Storage Option

The 2XU VTR is a cost effective, easily integrated solution for bringing Real Time uncompressed HD and SD to any broadcasting environment. Whether you are ingesting uncompressed HD SDI direct from camera, telecine, or tape, the 2XU VTR performs accurate lossless live capture, playback and edit with remote management. Without altering the original feed, multiple users can simultaneously preview ingest channels while recording is in progress. Data can be stored onto 4x hot-swap removable drives, and transported to a post production facility for immediate editing.

Designed to fit seamlessly into a high-resolution production workflow, the GVS9000 2XU VTR offers a Virtual Tape capability that allows users to incrementally move to a digital disk based workflow. With this digital disk based technology, the GVS9000 2XU VTR capture provides a single flexible platform for all your content production from live and post production applications.

Uncompressed Recording for:

2.5 Hrs. HD

HD 4:4:4 SDI to disk while in full motion

GVS9000 2XU VTR includes:

- Solid State Drive Configuration
- DVC/CD Dual Layer Record/Play
- Simultaneous ingest and play-back
- Video formats (1080i/p + 2K) (SMPTE 259/292/296/) Dual-link RGB 4:4:4 (SMPTE 372M)options
- HD SDI, SD SDI (ingest/playback)
- Analog HD and SD out, YPbPr, RGB
- HD<–>SD and HD<–>HD Cross-conversion
- 9 Pin machine control (RS422)
- Audio LTC In/out
- Genlock In/Out
- 8 or 16 Channel embedded audio
- Uncompressed 4:2:2 recording during full motion directly from HD camera
- Advanced Scheduling
- Integrated video media browser (VMB)
- Real-time DPX (recording and play-back)
- 96kHz or 48kHz 16-bit digital audio I/O
- Remote Network Control
- Real-time Cineon play-back (option)
- 4GB Fibre Channel Storage w/GVSAN (option)
- 12V DC input with FlyPack (option)
- High speed graphics for edit FCP (option)
- VDCP automation control (option)
- Hardware RAID 0, 1, 5, 6 for hot-swap (option)

GVS9000 2XU VTR

New feature of the GVS9000 2XU VTR is its Solid State Disk (SSD) providing much higher product capability without sacrificing features. Solid State Disk is offered for all the models of GVS9000 2XU VTR, giving users the ability to maintain high data access, and providing greater stability and ruggedness, a simple upgrade path, and the option for future growth.

The GVS9000 2XU-VTR is a low profile rack mountable system occupying less than 18" wide. It's an innovative, completely ruggedized field recorder, designed with open architecture and redundant low power consumption, providing you the ability to record HD while in transit.

Users can quickly capture video and audio clips of any length and size either manually, via remote control, scheduled or camera controlled. At only 2U high and 21" deep, several 2XU-VTR stations can be stacked in a compact area, offering 8 concurrent uncompressed 4:4:4 recordings with one simple record button, with genlock and Time Code LTC support.

Additional edit options available with GVS9000 2XU VTR can provide complete uncompressed DPX or Quicktime files after or during capture, with HD SDI preview, with time code embedded file support during edit with mark-in and mark-out as well as XML clip capability allowing operators to mark subclips on the fly, and modular architecture supports multiple record, playback and Final Cut Pro editorial channels in the studio or out in the field.

Part Number	Model Number	RAID Option	Max Cache	HD 4:4:4 Support	HD 4:2:2 Support	SDI Audio I/O	Hot-Swap Drive	Max Storage	SAN Support
G02UPPC9702-02	2XUVTR-422	Yes	8GB	No	Yes	8	SATA	2.0TB	No
2XU04ATP2S021	2XUVTR-444	Yes	8GB	Yes	Yes	16	SATA/SAS	4.0TB	No
2XU04ATP2F024	2XUVTR-02K	Yes	16GB	Yes	Yes	16	SATA/SAS	6.0TB	Yes

GVS9000 2XU VTR technical specifications

Absolute Max Shuttle Speed
Real time speed

HD Out Sync
Special settings are designed for each of your output sources, from HD to DV with sync options.

Emulate 9-Pin
A protocol which emulates a 9-pin video deck providing extremely good overall compatibility, with the ability to select various parameters to ensure 100% compatibility.

Force Lock To Sound Timebase (LTC)
This function ensures that timebase is selected from the specific source during capture.

Full Screen On
This provides the ability to have full video source on LCD or video screen.

RS422 Stop Overshoot Correct Frames
When chasing timecode, VTR automatically plays when the timecode starts and stops. This provides complete control of backup and compensation for any timecode run on.

RS422 overrides Video Hardware timestamp
Allows for manual entry of the timecode track during recording via MTC through RS422, from an external LTC feed, and can be automatically generated or imported from a number of different interfaces.

9-pin ID
GVS9000 2XU VTR can identify itself as a variety of different VTRs. This allows user to choose the status returned by VTR when requested via 9-pin.

9-Pin Preferences
True 9-pin control frames are clocked out in sync with your controller, maintaining perfectly drift-free playback at all times.

Operational Performance
- Rec/Play time per 2,000 GB uncompressed HD 1080p 23.98 10-bit (~3.5 hours)
- Visually lossless: 1920 x 1080 4:4:4 23.98 10-bit (~2.5 hours)
- 720p 10-bit (~5 hours)

(Storage estimates based on real-world recording tests. Exact storage results vary depending on content, source quality, frame rate, and image settings.)

PreRoll Movie
GVS9000 2XU VTR offers a "Pre-Roll" mode which will automatically pre-cache data and ready to start playback instantly.

Preview During Capture
From SDI input SD or HD as well as video output can be previewed on Flypack SDI LCD or external SDI

Restore Video Settings
For expediting the production, GVS9000 2XU VTR creates audio and video settings so any previous parameters can be recalled to ensure the exact form. When VTR enters E-E or record mode, it will use the default parameters saved from session to session.

Standard-RS422 Sync
GVS9000 2XU VTR can be programmed to chase an external timecode source in order to get the proper video frame to appear to coincide with the incoming frame of timecode, multiple 2XU designed to playback sync.

Superimpose Graphics On Picture
Foley and ADR recording. The desired graphics are applied over the top and the finished frame is passed to the specified Video output.

Sync Tolerance Frames
Acting as an External timecode source, it constantly tracks the timecode values arriving from a number of different sources such as telecine, direct from digital camera, tape, direct to disk animation or another GVS9000 2XU VTR. Video Head Disengage ThresholdGVS9000 2XU VTR allows playback of picture at slower, and faster than real time.

GVS9000 2XU VTR Specifications:

Video Modes InPut SMPTE-259/292/296:
- Rec/Play time Play visually lossless with 2,000-4,000 GB Storage
- Single HD SDI, SD SDI and dual HD SDI 4:4:4 with 2K HSDL 4:4:4 (option)
- 2K 2048 x 1556 24p, 24psF, 48i (2XU)
- HD 1920x1080 4.4.4 1080p 23.98 1080i 29.97
- SD D1 720x486 720p 60 720p 59.9
- SD D1 720x576 625i 525i 29.97

Video Modes OutPut:
- Two HD and SD SDI output
- HD-SDI/S single link 4:2:2 I/O
- Two link 4:2:2 (YUV) I/O 2x SDI/HD-SDI outputs one for HD and 2nd SDI for SD down-converter

Analog: SD and HD Output, 12-bits, BNC:
- HD: YPbPr, RGB
- SD: YPbPr, RGB (component mode)
- Composite or S-Video (input-output)

Uncompressed Pixel Formats:
- 12/10/8 bit YUV/RGB
- QuickTime, Cineon and DPX support- HD resolution ProRes 422 525i 29.97, 625i 25, 720p 50, 720p 59.94, 720p 60, 1080i 25, 1080i 29.97, 1080i 30, 1080PsF 23.98, 1080PsF 24, 1080P 24, 1080P 25, 1080P 29.97, 1080P 30, 1080P 50, 1080P 59.94, 1080P 60. 2K: 2048 x 1080P 23.98, 2048 x 1080P 24, 2048 x 1080PsF 23.98, 2048 x 1080PsF 24, 2048 x 1556PsF 14.98 (HSDL data rate) 2048 x 1556PsF 15 (HSDL data rate) 2048 x 1556psf 23.98 (playback rate) 2048 x 1556PsF 24 (playback rate)

Audio:
- Quantization: 16-bit, 20-bit, 24-bit selectable
- 8 channels SDI BNC audio
- 2 channels of AES/EBU XLR audio 48Khz synchronous Audio: 2XU04ATP2S021 and 2XU04ATP2F024
- 16 channels SDI BNC audio 48kHz
- 24-bit AES audio, 8 channel 96kHz or 48kHz 16bitHW Conversion: 2XU04ATP2S021 and 2XU04ATP2F024
- Real-time SD to SD, SD 4:3 to HD 16:9
- Cross-Convertion 1080i to 720p, 720P to 1080i and 720P to 1089PsF

Genlock:
- Analog: SD: Black Burst, Bi-Level; HD: Tri-Level
- Digital: SD SDI; HD : HD-SDI, QuLink BNC I/O

Storage Option:
- 2.0TB Onboard storage, upgrade to 4.0TB
- 4x Removable RAID Media Sets Max. storage 6TB internal

Play Control:
- Dual or Quad 4Gb/s Fiber Interface for external storage (2XU)
- Dual 10/100/1000BT Network for small file transfer to DV-DVCProHD
- RS-422: D-sub 9-pin machine control
- RS-232: 3-sub 9-pin
- Dual FireWire 800 port and FireWire 400
- Dual USB ports
- Back headphone minijack and speaker
- Optical digital audio in and out
- Stereo audio in and out (option)

One Option can be selected from following I/O:
- Option-A Hardware RAID 0, 1, 3,5 and 6 w/cache
- Option-B Dual 4GB Fibre Channel I/O
- Option-C Quad 4GB Fibre Channel I/O
- Option-D Dual DVI High speed Graphic for FCP

Electrical and environmental requirements:
- Meets ENERGY STAR requirements
- Line voltage: 650W 100-120V AC or 200-240V AC
- Frequency: 50Hz to 60Hz, single phase
- Maximum current: 8.0A (low-voltage range) or 4.0A (high-voltage range)
- Operating temperature: 50° to 95°F (10° to 35°C)
- Storage temperature: -40° to 116°F (-40° to 47°C)
- Relative humidity: 5% to 95% noncondensing
- Maximum altitude: 10,000 feet

Size and weight:
- Height: 3.4 inches (83 mm)
- Width: 17.0 inches (416mm)
- Rack Depth: 21.00 inches/(512mm)
- Weight: 37.2 pounds (16.90 kg), fully configured

This technology is preparatory design of GVS9000 2U product family, which has been implemented for sonar recordings in all U.S. Submarines.

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