GVS9000 2U VTR Compact Digital Rugged Field Recorder

GVS9000 2U Uncompressed HD Recorder

The 2U 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 direct from Camera, Telecine, or Tape, the 2U 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 4xhot-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 2U 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 2U VTR CAPTURE provides a single flexible platform for all your content production from live to post production.

Uncompressed Capacity:

3 hrs. 4:2:2 HD

from SD or HD SDI camera to disk while in full motion

GVS9000 2U VTR includes:
- Simultaneous ingest and play-out
- Video formats (525i/p, 720i/p, 1080i/p and 2K) options
- HD and SD SDI (ingest and broadcast)
- Analog SD and HD out, YPbPr, RGB
- HD (720p, 1080i, 1080sf) Audio/Video
- HD to SD HD to HD Cross-conversion
- 9 Pin machine control (RS-422)
- Audio LTC capture
- Genlock In/Out
- Digital SDI video AES/EBU audio Input/Output
- VDCP automation control (optional)
- Dual layer DVD/RW
-Lower power consumption- Supports full bandwidth uncompressed 4:2:2 8-bits during full motion.
- Advanced Scheduling
- Integrated video media browser (VMB)
- DPX (ingest and play-back)
- Supports any uncompressed Quicktime SD or HD with following codecs
- Captures and plays back uncompressed 10-bit and 8-bit digital video, 48-bit digital audio in standard and high definition (SMPTE 259/292/296/), and optional Dual-link RGB 4:4:4 (SMPTE 372M)
- Remote Network Control
- Fibre Channel Storage GVSAN (optional)
-12V DC input with Flypack (optional)

2U VTR–rugged, extremely quiet solution for recording studios

The GVS9000 2U-VTR is a rugged, low profile rack mountable system occupying less than 19" deep rack space. It's an innovative, completely ruggedized field recorder, designed with open architecture and extreme low power consumption, and noise, providing you the ability to record uncompressed HD anywhere even while in transit.

Users can quickly capture uncompressed video and audio clips of any length and size either manually, via remote control, scheduled or camera controlled. At only 2U high and 19" deep, several 2U-VTR stations can be stacked in a compact area, offering 8 concurrent recordings with one simple record button.

Premiere Pro, Final Cut Pro, Xpress Pro, Combustion, Discreet and Vegas are just a few of the uncompressed HD editing software of choice that are available for Windows and Mac OS X that take advantage of the GVS9000 2U VTR uncompressed removable disks for immediate editing. Final Cut Pro takes advantage of another one of the unique options that GVS9000 VTR offers for live or news event - editing media during capture. In addition to this option, GVS9000 VTR's offer proxy files for editors which assist in content production within your office or for across the web edit and preview. But perhaps the GVS9000 2U VTR's key feature is its ability to create duplicate HD disks simultaneously. While one remains with the VTR, the 2nd hot-swap disk goes out to the post house, for immediate edit without the need for file conversion or data transfer.

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, mark-out and 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.

For online storage, the GVS9000 2U VTR is designed with multiple redundant drives to ensure data security at any given point during recording, even when recording in motion, such as in a vehicle chase, or high speed races, where you need to record uncompressed content direct from digital camera with SD or HD SDI interface.

GVS also offers custom digital camera interfaces for support of simple recording and stop with real-time preview on the GVS90004U Flypack HD SDI LCD display with embedded time-code during the shoot. For multiple camera shoots, GVS offers a simple and easy shared storage option using GVSAN to help simplify uncompressed content without the need to transfer in the production environment. With the GVSAN technology you get the highest data access and most quiet on-set recorder. Connect via 4GB fibre channel to the Nomadic4U or and GVS9000 2XU running GVS BASS (broadcast automation software solution).

Part Number	Model Number	Hardware RAID	Max Cache	HD 4:4:4 Support	HD 4.2.2 Support	Audio I/O	Drive Type	Max Storage	SAN Support
4NXU08ATP2S008	GVS90004NXUVTR-1422	PCI-e	128MB	No	Yes	4	SATA-II	4.0TB	No
4NXU12ATP2S021	GVS90004NXUVTR-1444	2xPCI-e	256MB	Yes	Yes	4	SATA-II	8.0TB	No
4NXU12ATP2F024	GVS90004NXUVTR-1422	2890C	1,000MB	No	Yes	4	SATA-II	4.0TB	Yes

GVS9000 2U 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 Time base (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.

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

MTC overrides Video Hardware timestamp
Allows for manual entry of the time code track during recording via MTC through LTC (BNC) feed, and can be automatically generated or imported from a number of different interfaces.

9-pin ID
GVS9000 2U 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 1080i 23.98 8-bit (~5.5 hours)
- Visually lossless: 1920 x 1080 4:4:4 23.98 10-bit (~2.5 hours)
- SD 10-bit (~20 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 2U 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 preview on Flypack SDI LCD or external SDI

Restore Video Settings
For expediting the production, GVS9000 2U 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 Sync
GVS9000 2U VTR can be programmed to chase an external time code source in order to get the proper video frame to appear to coincide with the incoming frame of time code.

Superimpose Graphics On Picture
Foley and ADR recording. One of the major architectural additions is for superimposing graphics on top of the movie pictures as they are played. The desired graphics are then applied over the top, and the finished frame is passed to the specified Video output.

Sync Tolerance Frames
Acting as an External time code source, it constantly tracks the time code values arriving from a number of different sources such as time code generate, telecine, direct from digital camera, tape, direct to disk animation or another GVS9000 2U VTR. Video Head Disengage Threshold

GVS9000 2U VTR allows playback of picture at slower, and faster than real time.

GVS9000 2U VTR Specifications:

Video Modes Input:
- Rec/Play time Play visually lossless with 2,000-3,000 GB Storage,
- Single or Dual Link (2XU) with support option
- 2K 2048 x 1556 24p, 24psF, 48i (2XU)
- HD 1920x1080 4.4.4 1080psf 23.98 1080i29.97
- SD D1 720x486 720p 60 720p 59.9
- SD D1 720x576 625i 525i 29.97

Video Modes Output:
- Dual HD-SDI 4:4:4 (RGB) I/O w/ GVS9000 2XU
- SDI/HD-SDI 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)

Pixel Formats:
- 16/12/10/8 bit YUV/RGB
- QuickTime, Cineon and DPX support

Audio:
- Quantization: 16-bit, 20-bit, 24-bit selectable
- 8 channels SDI BNC audio
- 2 channels of AES/EBU XLR audio
- 16 Channels of embedded audio per SDI w/2XU
- 48Khz synchronous
- Upgrade option available to 96Khz or 192 kHz audio support for 2XU

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

Storage Option:
- 1.8TB Onboard High-speed Recording Storage
- 4x Removable RAID Media Sets 2.0TB Storage

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

Electrical and environmental requirements:
- Meets ENERGY STAR requirements
- Line voltage: 400W 90-132V AC or 180-264V AC
- Frequency: 47Hz to 63Hz, single phase
- Maximum current: 4.4A (low-voltage range) or 2.2A (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)
- Depth: 19.38 inches (492mm)
- Weight: 39.2 pounds (17.8 kg), fully configured

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

For hard drive capacity measurements, 1GB = 1 billion bytes; actual formatted capacity less by 5% base on format. Weight varies by configuration and manufacturing process.

Product specifications are subject to change without notice.

GVS9000 2U and 2XU VTR designed and manufactured in the U.S. by GVS-Grande Vitesse Systems Inc.

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