GRASS VALLEY GROUP

FULL LINE CATALOG

2001

FALL 2001

Media Without Bounds™

HIGH-QUALITY VIDEO.

ANY CONTENT.

ANY TIME.

ANY PLACE.

MAKING MONEY WITHOUT BETTING THE FARM

Digicasters are pre-eminent creators of high-caliber content. They want to get any content, any time, any place - to take advantage of everything that digital pipelines and expanding bandwidth have to offer. They want to make money with their current business model and be ready for the next BIG opportunity, whatever that is and whenever it gets here. And do it all without betting the farm.

In other words, Digicasters are efficiency fiends. Against the backdrop of the " new, new" economy, who isn't?

Perhaps no model epitomizes the drive for digicasting efficiency more than central casting. A central-facility model means all things media - and all things that enable the efficient delivery of that media. It acknowledges that broadcasters will have a variety of content distribution opportunities, from hard-news delivery and multi-channel broadcasting to Internet streaming and interactive television. Which means they'll need a future-proof way to exploit these new opportunities.

As a leading broadcast equipment supplier, we see central casting as emblematic of an unequivocal market trend: the demand for open, integrated solutions that drive workflow and capital efficiencies. From the infrastructure that provides a facility's digital underpinnings and the distribution framework that gets content where it needs to go, to holistic solutions for news, digital production, the Internet, and emerging markets such as high-definition presentation, this is where we've focused our attention.

And it's the driving force behind our entire product line.

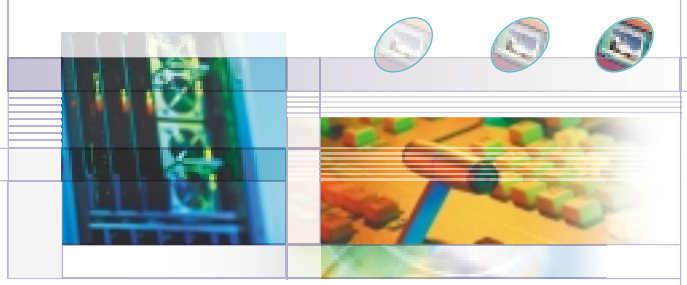
Our Grass Valley™ Media Area Network™ (MAN) shared-storage system simultaneously provides unlimited access to high-quality video and the tools needed to manipulate that video. Our multi-format, multi-resolution Profile® XP Media Platform supports the high-quality standards required for broadcast television and the low-resolution required for the Internet - and upgrades to high-definition signal processing with a board swap. Our digital production systems, including the Kalypso™ Video Production Center, and our Zodiak™ Production Switcher, add incredible levels of teleproduction value. And our routing systems offer everything from a handful of crosspoints to millions, as well as new a scalable facility control system.

For digital news production, our Grass Valley Digital News Production Workgroup offers unprecedented speed and efficiency while being easy to use for lifetime tape operators. A new Profile system offers the bullet-proof performance needed for hard-news and sports production. And leveraging our open ContentShare™ platform for information access and exchange, our solutions offer unprecedented newsroom computing system integration.

For the Internet, our WebAble™ tool suite and powerful Aqua™ Internet encoder offer the capacity to easily, even automatically re-purpose video assets at a fraction of today's cost- and with far better quality.

These Grass Valley Group products reflect a practical approach that is enabling Digicasters to maintain equilibrium in today's market, to make step-wise investments in their current business models, and to proceed with their transition to a fully digital model unabated by economic ups and downs.

Despite the economy's recalibration, the digital beat still goes on. So too does the pace of innovation at the Grass Valley Group. To create efficiency driven solutions that maximize media investments.



GRASS VALLEY GROUP

www.grassvalleygroup.com

ENABLING MEDIA WITHOUT BOUNDS™
SOLUTIONS FOR DIGICASTERS™

The Grass Valley Group provides a full complement of digital media hardware and software products and efficiency-driven solutions to maximize your media investments.

6 CENTRAL CASTING

You need a practical, economical set of real-time solutions for shared storage, media access, remote master control, server, media transport, and remote monitoring to bring your centralized model to life. All integrated to scale with your evolving channel count and networking needs. Our Media Distribution solutions do just that.

26 PRODUCTION SYSTEMS

It's immensely powerful. It's incredibly intuitive. And professionals worldwide can't get enough of it. That's because our production solution is loaded with intelligent software and robust networking technologies – and packed into a smart mechanical design that fits the way you work. Take a minute to learn more about our video production centers, video production switchers, and DVE systems.

38 NEWS PRODUCTION

Our news production solution touches the entire news production process. Works as fast as you do. Gets stories wherever they need to go. Increases the production value of your news content. And costs less than tape-based solutions.

49 INTERNET

As a professional content creator, Internet streaming will play a big role in your future. That's why you need streaming tools, not toys. Tools that fit your existing workflow, provide the highest-quality output, and make the most of your business model – whatever it may be.

57 DIGICASTING INFRASTRUCTURE

A good digital media infrastructure is like the foundation of a building. Do it right, and you've got the strongest digital underpinnings possible. Get it wrong, and it's just a matter of time before the cracks start to show. So what's the best way to build one? Start with our router, modular, server, shared storage, and media software products.

SHARED STORAGE, SERVERS

9 **Grass Valley™ Media Area Network Real-Time Shared-Storage System -** A no-compromises solution offering simultaneous access to broadcast-quality materials from Profile® devices and to Windows NT®-based video tools

10 **PVS1100 Profile® XP Media Platform -** Built for today's newsrooms with support for DVCPRO, DVCPRO50, I-Frame MPEG formats and the D-10 standard. Features on-the-fly channel configuration, smooth slo-mo technology, built-in SDTI capabilities.

11 **Profile® Network Archive -** Affordable, fast, scalable system for near-line video storage. Anchored by the Profile XP Media Platform, this flexible and high-availability system offers advanced management software and support for popular tape-automation systems and libraries.

13 **Profile® XP Media Platform -** Going beyond the capabilities of traditional video servers with the PVS1000, PVS2000, and the PFC500 RAID system. With more broadcast content stored on it than any other server, the Profile XP is the industry's most open solution, supporting both the high-quality standards required for broadcast television and low-resolution required for the Internet, as well as MPEG, DVCPRO, HD and MPEG Transport Stream (MTS) formats. Now supporting more than 100 software applications.

17 **PFC500 RAID System -** Our PFC500 RAID system offers flexibility, scalability, and, above all, availability. It can stay online even if a disk drive, power supply, controller, or fan fails – and serviced without going offline. Want to add channels? Move to DH production? This expandable system will grow with you.

SWITCHERS, DVE SYSTEMS

27 **Zodiak™ Video Production Switcher -** With an unrivaled combination of production power and affordability, the next-generation Zodiak Digital Video Production Switcher is right at home in sports arenas, post-production, mobile, or mid- or small-market broadcast facilities – as a new addition or an analog switcher replacement.

29 **Grass Valley Kalypso™ Video Production Center -** hub of a teleproduction environment that combines industry-leading switching, powerful M/E capabilities, and open, networked architecture for unparalleled integrated operation.

32 **Grass Valley Model 1200 -** component digital production switcher which delivers large switcher performance in a unique, compact design.

33 **Grass Valley Model 110HD -** economical production switcher.

34 **GVeous™ -** Advanced, real-time digital video effects system

NEWS PRODUCTION

42 **Grass Valley NewsEdit™ -** The Grass Valley NewsEdit nonlinear editor was designed from scratch specifically for cuts-only editing bays. And it shows. With no pre-digitization requirement, it's twice as fast as other nonlinear systems, letting you record directly from tape timeline and view edits on the fly – just like a tape-to-tape edit bay.

45 **Grass Valley FeedClip™ -** With the Grass Valley FeedClip interactive feed capture system, you can turn around live events faster than in an all-tape environment. Breaking news, live events, or sporting contests, you can mark clips on the fly with a single keystroke, make them available for editing, and get them to air fast.

48 **Grass Valley NewsQ™ -** The Grass Valley NewsQ manual playback system is easy to use, even in pressure situations. Its two-channel A/B-roll playlist management and familiar Windows NT interface lets you enter a running order of stories and clips quickly , cue them, and trigger them for air – and manipulate this list dynamically, without interrupting playback.

INTERNET

51 **Grass Valley Aqua™ Internet Encoder -** The Aqua Internet encoder supports everything from simple audio to DVD-comparable video – and all major streaming formats. Better still, its One Pass Encoding™ technology lets you pre-process, capture, clean and encode an input source and render it into multiple streaming formats at multiple bit rates – all in real time.

52 **Grass Valley WebAble Tool Suite -** The WebAble tool suite offers a drag-and-drop method for creating streaming media from the content of a Profile® XP Media Platform. Simplified and streamlined, it makes transferring a video clip to a Web server as easy as copying a spreadsheet to a floppy disk – and conversion to standard streaming formats automatic.

54 **Grass Valley ContentShare™ Platform for Information Access & Exchange -** Forget about custom interfaces for linking third-party applications. The ContentShare platform offers an open, industry-standard framework for doing so. One based on the extensible Markup Language (XML). One that can maintain linkages even as applications change.

FACILITY CONTROL SOFTWARE, ROUTERS, NETWORK DIAGNOSTICS, MODULAR

61 **Grass Valley Encore™ Facility Control System -** An open, scalable system offering an a la carte approach to facility control. Its modular design lets you select just the level of control you need, from basic crosspoint configuration to centralized or distributed router and machine control. Features tight integration with automation systems, third-party routers, and other equipment – making it easy to consolidate all media assets into a single control system.

64 **Grass Valley NetCentral™ Remote Monitoring System -** The predictive-failure capabilities of the SNMP-based NetCentral software can notify a technician or operator when a component is likely to fail, sending a notification via e-mail, pager, cell phone or graphical user interface. It can monitor a network of any size and scope using a standard Web browser.

67 **Grass Valley Concerto™ Series Compact Routing Matrix -** Offering unparalleled multi-format support, the Concerto Series features the FlexFrame™ technology and optional 32x32 cards to add new formats easily – or expand support for another. Scalable to 128x128 and just 7 RU, this matrix fits mobile operations as easily as broadcast or post-production facilities.

FACILITY CONTROL SOFTWARE, ROUTERS, NETWORK DIAGNOSTICS, MODULAR (CONT.)

70 **Grass Valley Group Routers -** Scaling from a handful of crosspoints to millions, Grass Valley routers are the most intuitive, most flexible, least power consuming available. Handling everything from video and audio signals to telecommunications traffic to Internet data, they offer proven performance, whatever your application.

70 **Grass Valley 7500 WB Wideband Routing Matrix -** A future-proof system that can handle any digital signal from 10 Mb/s to 1.5 Gb/s. You can configure it to route SD and HD signals simultaneously. It's a great fit for your broadcast, production, post-production, telecommunications, or satellite-service facility.

72 **Grass Valley 7500 NB Narrowband Routing Matrix -** The perfect low-power, low-cost solution for low-bandwidth signals. Designed for synchronous or asynchronous digital audio, it's an ideal companion for our enterprise digital video routers. Great for data routing or for telecommunications and cable operations.

74 **Grass Valley Series 7000 Control System, Control Panels -** The Series 7000 control system has proven itself in mission critical applications worldwide and provides robust, reliable control for enterprise routing matrices.

77 **Grass Valley Series 7000 Routing Matrices -** Installed around the world and delivering around the clock, our Series 7000 routing matrices offer proven performance for handling composite and component analog as well as serial composite and component digital video.

78 **Grass Valley Series Performer™ Routing Switchers -**The well-known and proven Performer™ routing switchers are a solid, affordable choice for utility routing. These flexible 10x1 systems support analog, SD and HD signals, making them a great choice for dubbing and monitoring, mobile production, and bypass applications in master control.

80 **Grass Valley M-2100 SDTV/HDTV Digital Master Control System -** Supporting SD and HD formats, this system lets you control up to 16 on-air channels from one panel and connect multiple panels easily – all while enjoying extensive keying flexibility, top-flight digital audio processing, and a host of software-controlled options.

83 **Grass Valley Modular Systems -** 2000 Wideband Series and 8900 Series modules offer a host of signal management products for format conversion, distribution amplification, timing, and processing.

GRASS VALLEY CUSTOMER SERVICE PROGRAMS

134 We offer quality services that enhance our quality products. Our Service Team delivers complete service solutions. Our professional staff can support you as you build a state-of-the-art network.

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WHY CENTRALIZE OPERATIONS IF YOU CAN'T FIND WHAT YOU WANT?

Digital media distribution offers enterprise-wide access to assets, applications

Escalating operational costs. Fluctuations in ad revenues. Station consolidation. Rising programming costs. Increasing the return on investment of equipment purchases.

No wonder there's talk about centralization.

Whether hub-and-spoke or central casting, the potential of consolidated operations is under closer scrutiny than ever. Do it right and you have exponential operational efficiency gains and reduced operational costs. You have more content, more accessible, going more places—with fewer steps along the way and generating far more revenue.

Yet Digicasters need a lot in return. A centralized operation must maintain production value—affiliates still need to break in with a local story, for example. It's got to offer affordable interconnectivity among all facilities, not just trade off equipment savings for higher telecommunications bills. Assets and applications must be available across an enterprise. And worries about reliability simply can't exist.

To bring centralized operations strategies to life, broadcasters need economical and practical content-sharing and equipment solutions for multimedia production, management, and distribution. Solutions that can grow over time. Right now.

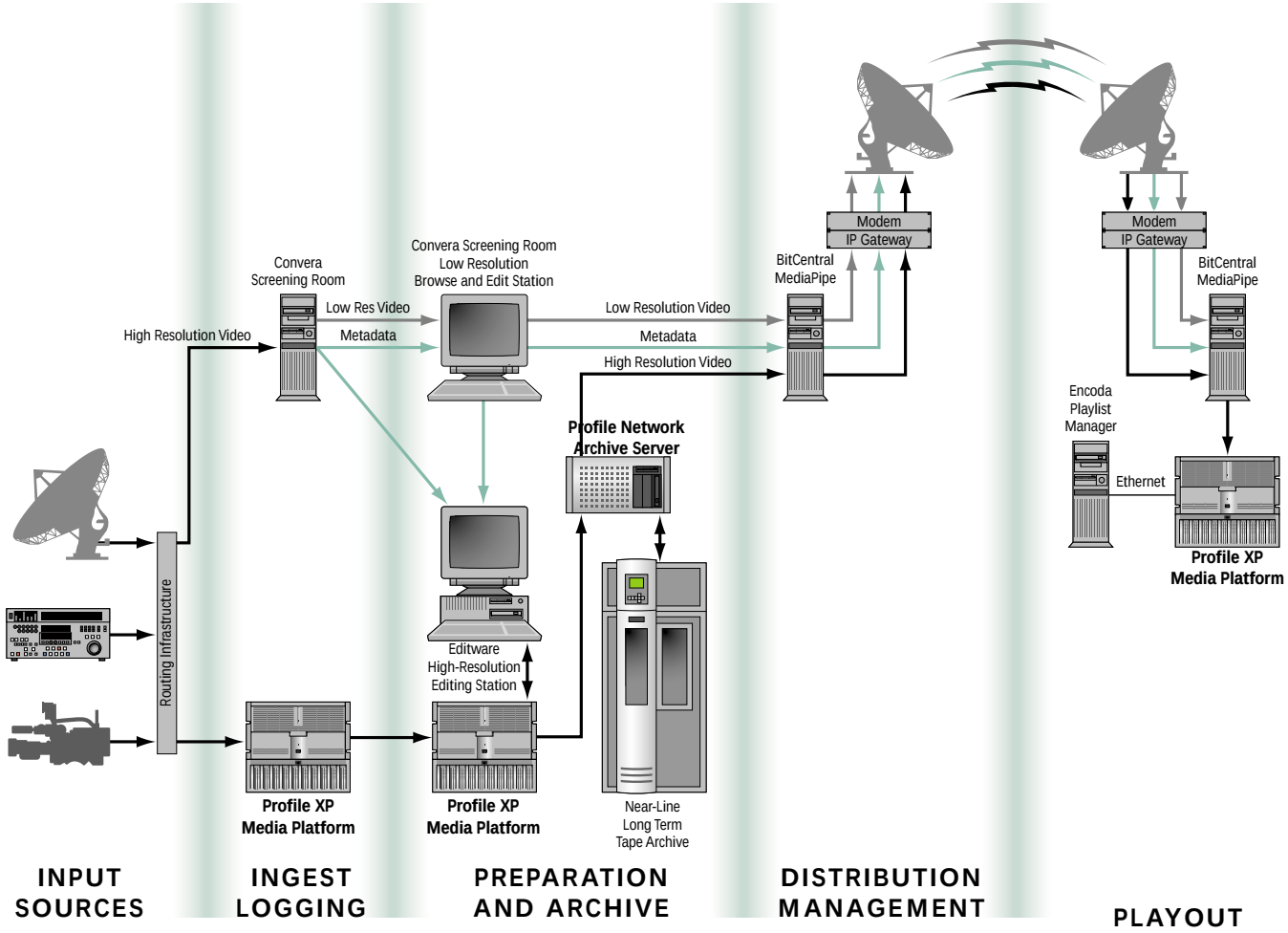
OK.

Grass Valley Group's digital media distribution approach

The Grass Valley Group's digital media distribution approach reduces operational costs by enabling a more efficient and effective way to locate, access, process, and distribute rich media content. Spanning a wide variety of tools, partners, and technologies, it can literally be adapted to any centralized model.

It all starts with shared storage. The Grass Valley Media Area Network (MAN) system provides simultaneous access to high-quality video and the tools necessary to manipulate that video. Leveraging the strength of the Profile XP Media Platform, this multi-channel, scalable, RAID-based system only stores one copy of a shared file, simplifying media management.

A TYPICAL GRASS VALLEY™ DIGITAL MEDIA DISTRIBUTION SOLUTION



To provide the WAN and satellite connectivity that lets equipment within and among facilities use these kinds of centrally located resources, the Grass Valley Group supports high-performance, networking technologies such as 100 BaseT, gigabit Ethernet networks, and ATM in redundant configurations. The company has led the interoperability movement with the development of its GXF format. And it is implementing interfaces for direct exchange of materials between devices via MPEG Transport Streams.

To keep all the parts running smoothly, the Grass Valley Group offers field-proven systems like those for master control. And its new Encore™ software offers an open, modular, scalable approach for facility control that works as well inside an operation as it does across a private WAN.

For putting all assets and applications within easy reach, the Grass Valley Group offers ContentShare, an eXtensible Markup Language (XML)-enabled software platform for information access and exchange. Available to any application, the ContentShare platform eliminates the time and cost of writing custom interfaces between asset-related applications, even when those applications change.

Yet centralized operations mean nothing if the workflow gets bogged down. That's why the Grass Valley Group's media distribution approach supports efficiency at every stage along the way—ingest, log, browse, rough cut, edit, playout, and archive—all through a common media access mechanism.

Ingest and logging: simultaneous access to high-res, low-res metadata

Today's workflows are fragmented. And materials are scattered to the four winds. Multiple systems house everything from descriptive metadata and interactive TV data to materials ranging from browse-quality MPEG 1 to broadcast-quality MPEG 2 video—generally all on different systems in different locations.

With the ability of the ContentShare platform to link applications and exchange information, users can access their favorite ingest and logging applications. ContentShare provides access to multiple resolutions of video and metadata by linking Profile and other metadata with metadata created by asset-management application providers such as Convera.

Material browse and editing

With ingest complete and hours of material in archive, there are two problems: how does an editor quickly access that material, and, once they've made changes, how are those changes and newly created edit decision lists (EDLs) made available downstream to other editors and applications?

First, access to material via the ContentShare platform is a snap. Because, via ContentShare, all material, whether recorded on a Profile device, generated from a system such as that from Convera, or resident in an archive, is fingertip accessible to an editor through a single search.

Now that the editor has accessed the material and created an edit with the richest set of content available, how are those changes and new EDLs made available to others? Answer: because applications such as Convera's Screening Room and Editware's Fasttrack VS support the ContentShare platform, a producer can rough-cut edit with MPEG 1 low-resolution browse video using Screening Room and publish the edit for refinement on EditWare's high-resolution nonlinear editor. Metadata associated with the original piece is maintained for future use and accessible to others via ContentShare. So whether it's browsing material, rough-cut editing in low resolution or editing in high resolution—or multitasking—the process is seamless.

Distribution and playout

There are tremendous efficiencies to be gained in a centralized model. But a significant challenge exists in managing the movement of assets—including video, audio, traffic logs, billing information, and associated metadata such as copy instructions—across multiple facilities over a WAN.

The ContentShare platform lets a central facility take metadata from the Convera Screening Room application and a traffic system and move it to an affiliate via a delivery and network management system, such as BitCentral's Media Pipe. It can then synchronize with automation playout systems—all via a common mechanism.

The simplicity of access to relevant metadata increases the accessibility of content—and thereby its value. The Profile XP Media Platform works with all premiere automation systems and also integrates well with the Grass Valley Group's master control systems. This integration provides a central or affiliate facility with a common universal access method to content and a robust platform for storage and playout.

True central casting solutions. True workflow efficiencies. The Grass Valley Group's digital media distribution approach. Available today.

QUICK REFERENCE GUIDE TO GRASS VALLEY GROUP
MEDIA DISTRIBUTION SOLUTIONS

9 **Grass Valley Media Area Network**, a real-time, no-compromises shared-storage system

10 **Profile XP Media Platform**, the industry's most open, supporting MPEG, DVCPRO, SD, HD, and MTS formats

11 **Profile Network Archive.** A flexible, networked, near-line central archiving system for media assets.

54 **ContentShare**, an open, standards-based software platform for information access and exchange**88** **2000 Wideband Series** modular products for high definition

61 **Encore**, an open, scalable facility control system

64 **NetCentral**, SNMP-based software for remote monitoring and diagnostics

67 **Concerto Series** compact router, for robust signal-type mixing in the same frame

70 **7500 WB Wideband Routing Matrix**, able to switch any signal from 10 Mb/s to 1.5 Gb/s

101 **8900 Series** modular products

MAN MEDIA AREA NETWORK™

FEATURES

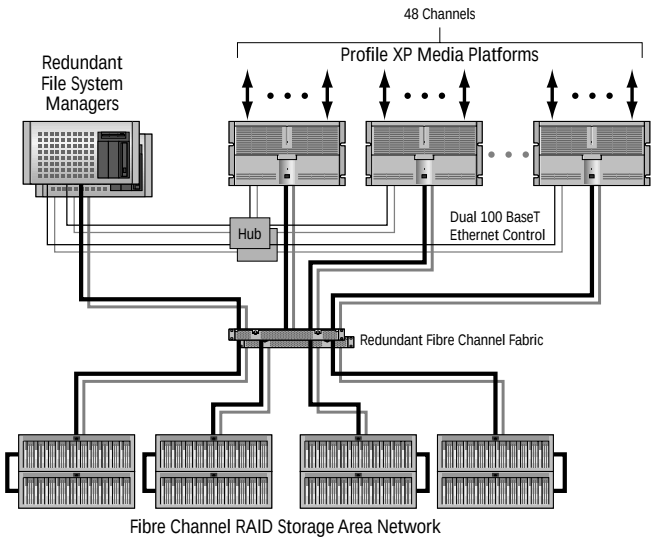
- Up to 48 video channels
- Standard and high definition video to 80 Mb/s
- MPEG and DVCPRO formats
- Windows NT compatible
- Real-time SAN
- No single point of failure
- Dynamic capacity expansion
- Dynamic video channel expansion
- SNMP remote monitoring with NetCentral software

MAN MEDIA AREA NETWORK REAL-TIME SAN IS INDUSTRY'S FIRST NO-COMPROMISE, SHARED-STORAGE SOLUTION

Overcoming the shortfalls of shared-storage products that limit simultaneous access to high-quality video and the tools needed to manipulate that video, the Grass Valley™ Media Area Network™ (MAN) shared-storage option for the Emmy® award-winning Profile® XP Media Platform offers a no-compromise solution.

A real-time, high-bandwidth, high-availability infrastructure built upon high-speed Fibre Channel technology, the Grass Valley MAN supports up to 48 channels of video that share a common RAID-protected storage network with thousands of hours of high-quality video and audio materials. It is the industry's only shared-storage solution to offer both real-time capabilities and Windows NT accessibility, and is architected to support future applications, such as video streaming for the Internet and interactive TV.

To support both standard- and high-definition bandwidths (up to 80 Mbps), the Grass Valley MAN relies on high-speed Fibre Channel networking to connect Profile XP Media Platform systems and shared RAID storage. Fibre Channel, the industry standard for high-bandwidth disk storage, provides 1 Gb/s connections between every Profile server and each RAID device installed on a Grass Valley MAN. And it features redundancy options that support the kind of no-single-point-of-failure design crucial to meeting the business demands placed on today's broadcasters and high-quality content creators. The Grass Valley MAN is also designed to accelerate fault detection and notification and problem diagnosis through the Grass Valley Group's NetCentral™ SNMP-based remote monitoring software.



ORDERING INFORMATION

For information on ordering this product, please contact your Grass Valley Group sales representative

PVS1100 PROFILE® XP MEDIA PLATFORM

FEATURES

- Support for DVCPRO25 and DVCPRO50 formats
- MPEG II 4:2:2 I-frame at 50 Mb/s
- D10 compatible (IMX compatibility)
- SDTI support – 2 channels configurable as inputs and outputs
- Unprecedented slow-motion playback capabilities on all channels
- 8 bi-directional channels (including MPEG)
- Any PVS1000 can be upgraded for full PVS1100 capability and SDTI support

PVS1100 PROFILE XP MEDIA PLATFORM SUPPORTS PRODUCTION WORKFLOW.

Life in a production environment is fast, deadline driven, and offers no margin for error. That's why the Grass Valley Group has designed an end-to-end collection of products tailored to meet the daily demands of news and sports production. Part of that offering is the PVS1100, the latest addition to the Profile® XP Media Platform line. The PVS1100 features support for DVCPRO, DVCPRO50, MPEG II 4:2:2 I-Frame support at 50 Mb/s, and D10 compatibility. Configurations include 2-, 4-, 6-, and 8 bi-directional channels that can be reconfigured as needed — and all channels offer enhanced slow-motion capability for flicker-free playback.

To keep pace with production workflows, the PVS1100 features built-in, dual-channel SDTI support, enabling it to accept compressed VTR video at up to four times real-time speed. Able to tap a full range of software from 50 Profile XP Media Platform application developers, the PVS1100 supports the Grass Valley Group's applications, including NetCentral™ software for Simple Network Management Protocol (SNMP)-based remote monitoring and diagnostics and the Profile InSync™ automatic mirroring software.

The PVS1100 is part of a far-reaching collection of Grass Valley Group products for news production. That collection includes the Vibrint™ Digital News Production Workgroup, featuring the Vibrint NewsEdit™ non-linear editing system, the Vibrint FeedClip™ interactive feed capture system, and Vibrint NewsQ™ low-cost playback system. It also includes the Grass Valley™ Media Area Network™ real-time shared storage option for the Profile XP Media Platform, and the industry's most flexible archive technology—the Profile Network Archive. It is also compliant with the Grass Valley Group's ContentShare™ software platform for media asset management, allowing for tight integration with third-party systems such as VNI News Tracker and the iNews Media Browse for powerful desktop news production.

FACILITY FIT

The PVS1100 Profile XP Media Platform system is optimized for production applications such as news and sports.

SPECIFICATIONS

INPUTS/OUTPUTS:
2/4/6/8 bi-directional channels for video, 2 I/O channels for SDTI

COMPRESSION FORMATS:
DVCPRO25, DVCPRO50, MPEG II 4:2:2 I-Frame at 50 Mb/s, D10

SDTI I/O:
2 channels at up to 100 Mbps per channel, 4x transfers for DVCPRO25, 2x for DVCPRO50, configured as 1 input/1 output or 2 inputs or 2 outputs. Supports DVCPRO and MPEG (SDTI-CP).

SNMP monitoring using NetCentral software

STORAGE:
36/73 GB drives

Upgradable to high-definition

SLOW MOTION:
Software upgradable, line interpolation for extremely smooth off-speed play

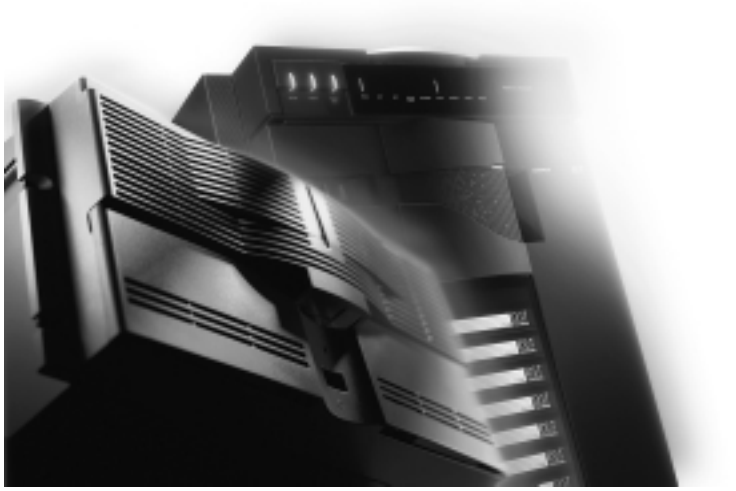
ORDERING INFORMATION

For information on ordering this product, please contact your Grass Valley Group sales representative

PNA PROFILE® NETWORK ARCHIVE SYSTEM

FEATURES

- High-speed networking via FibreChannel
- EMC Avalon Archive Manager for advanced library management
- Supports automation systems from Louth, Columbine, Drake, Omnibus, FloriCal, ProBel, and others
- Supports most popular tape library products from Ampex, ADIC, StorageTek and others
- Supports ContentShare software platform for media asset management



PROFILE NETWORK ARCHIVE SYSTEM NEXT-GENERATION APPROACH FOR CENTRAL ARCHIVING

The Grass Valley Group's Profile® Network Archive system provides an affordable, scalable storage solution for broadcasters and video professionals. Designed for flexibility and high availability, it offers advanced management software and support for popular tape automation systems and libraries so an organization can configure its archive system with the optimal amount of capacity and performance.

At the heart of Profile Network Archive system is an off-the-shelf server with Fibre Channel and SCSI connections that serves as a high-speed gateway connecting multiple Profile XP Media Platform systems and a tape library. Users can also scale the number of servers to support multiple libraries.

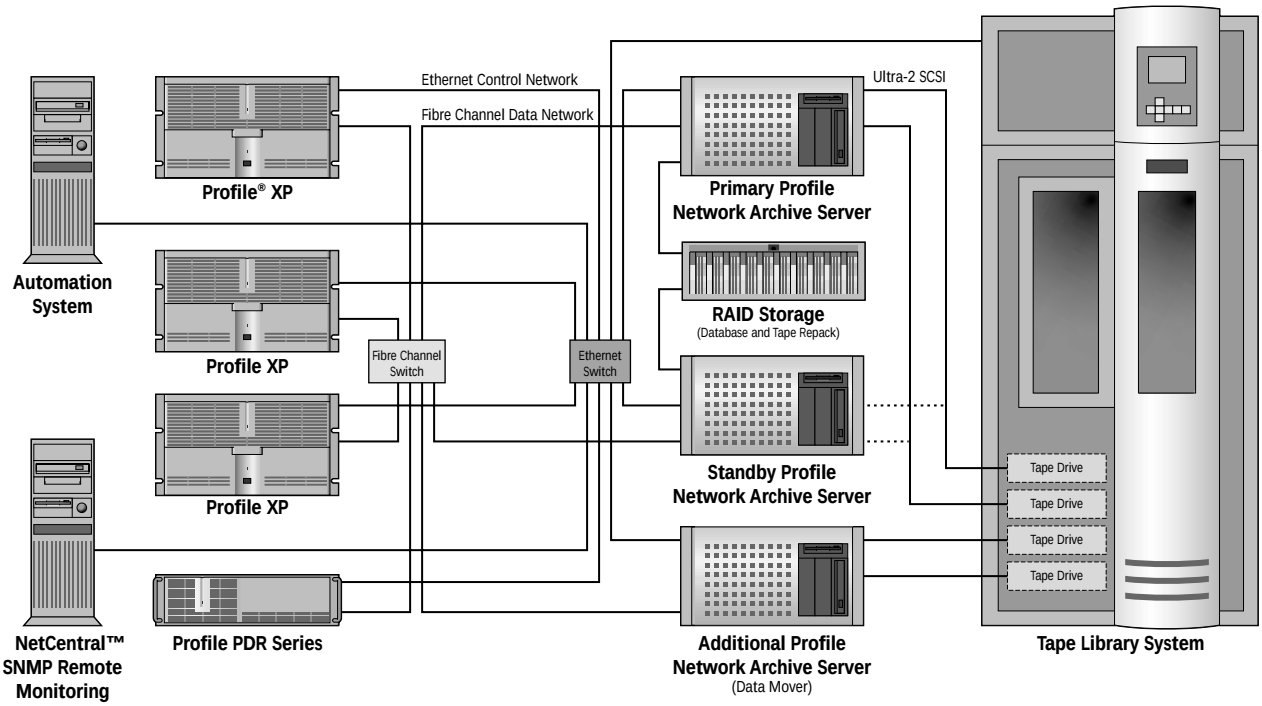
For library management, Profile Network Archive systems use the most advanced software available, the Avalon Archive Manager (AAM), from EMC. The AAM uses a widely adopted application programming interface to allow third-party applications to direct the archival of material to and restore it from any Profile Media Platform system on a Fibre Channel network.

Every Profile Network Archive system includes high-availability features. Most configurations come with a standby server, and all servers feature redundant power supplies.

To protect the AAM database of library contents, the Profile Network Archive system uses RAID disk array technology. To simplify failover operation, the RAID disks are housed in an external subsystem cabled to the backup server. The subsystem uses redundant power supplies for additional protection.

The Profile Network Archive system supports a wide range of automation systems, including those of Louth, Columbine, Drake, Omnibus, FloriCal, ProBel, and others. It also supports most popular tape library products from Ampex, ADIC, StorageTek and others. And it supports the Grass Valley Group's ContentShare™ software platform for media asset management.

PNA PROFILE® NETWORK ARCHIVE SYSTEM



Typical Profile Network Archive System. Profile Network Archive architecture provides users with the flexibility to configure their archive system for optimal performance and cost effectiveness.

ORDERING INFORMATION

For information on ordering this product, please contact your Grass Valley Group sales representative

PVS1000 PROFILE® XP MEDIA PLATFORM

FEATURES

- Standard definition configuration
- Up to 8 channels of broadcast quality video per mainframe
- MPEG-2 4:2:2 @ main level from 4-50 Mb/s, long GOP
- SMPTE 259M, 270 MHz serial digital I/O (analog optional)
- 16 (8 AES pairs)/32 (16 AES pairs) channel audio – AES/EBU, embedded or analog uncompressed audio, Dolby E and AC-3 compressed audio
- 600 Mb/s system bandwidth
- Redundant power supply, NT disk & fans
- Fibre Channel attached high performance RAID-3 storage
- Modular upgrade to high definition
- Remote error reporting & monitoring via SNMP
- High speed Fibre Channel networking with reak time transfer rates up to 250 Mb/s
- 100Base-T Ethernet networking up to 30 Mb/s
- 525 line (NTSC) or 625 line (PAL) support
- Compatible with existing Profiles and networks

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

FLEXIBILITY AND UPGRADABILITY – KEYS TO THE FUTURE

The norm for today's broadcast industry is change. With the move from analog to digital, tape to disk, standard definition to high definition, reduced budgets and changing standards – you need a server that can quickly adapt to your changing requirements. The Profile XP was specifically designed for that flexibility. Its modular design makes it the most scalable and upgradable server in the industry.

UNLIMITED EXPANSION CAPABILITY

Start small and grow by adding channels or storage capacity. The Profile XP can expand in either direction without paying a cost premium up front. By adding I/O channels and codecs you can expand your PVS1000 up to 8 simultaneous channels. Need more? Add additional mainframes in a networked environment for hundreds of channels. Or for specific applications, you may want to have all of your channels share the same storage. With Profile Media Area Network™ real-time shared storage, multiple profiles and even non-linear editors will be able to access a common storage network (future capability).

STANDARD DEFINITION – OPTIMIZED FOR DIGITAL TV

The natural choice for television systems design is now digital. The PVS1000 is an all digital architecture supporting SDI video I/O and either uncompressed or compressed digital audio. Still using analog today but want the benefits of a digital server? External video and audio analog conversion equipment is available to get you started so when you convert to digital, your server is already set.

APPLICATIONS – READY TO GO

The Profile XP family uses the same software interface and compression format as the Profile PDR300, which means that your application may already support the PVS1000. Key applications for the PVS1000 are:

- Commercial Insertions
- CART machine replacement/cache
- Program Ingest & Playback
- Program Store & Forward
- Time Delay
- Ingest and Playout in news environment

PVS1000 PROFILE® XP MEDIA PLATFORM

SPECIFICATIONS

VIDEO CHANNELS
4 to 8 Channels:
2 in/2 out PVS 1022
2 in/4 out PVS 1024
2 in/6 out PVS 1026
4 in/4 out PVS 1044
6 in/2 out PVS 1062
0 in/8 out PVS 1008
0 in/4 out PVS 1004

COMPRESSION FORMAT
MPEG-2 4:2:2 @ Main Level
4 Mb/s – 50 Mb/s
GOP – 1 to 16
I, IB, IBBP
Store any 6 lines of VBI uncompressed

601 SERIAL DIGITAL VIDEO I/O
Each Module Contains 4 BNC Serial Digital Component Video Connections:
270 Mb/s SMPTE 259M I/O
Configured as 2 in & 2 out or 4 out
625 and 525 line rates supported
50, 59.94 and 60 fps
8 or 10-bit input resolution
10-bit output resolution
Supports 8 channels of embedded audio (4 pairs) per video channel
Video Frame buffer on each input
Auto-timing range – 1 Fame

ANALOG COMPOSITE VIDEO I/O
Analog Composite to 601 Converters:
8900TFN = 10 slot Frame w/Ethernet interface
8960DEC per input channel
8960ENC per output channel

AUDIO
16 or 32 (Opt.) channels
2 AES monitor ch per 16 channel
XLR (2 RU) or BNC (1 RU) Breakout Panels
Analog Audio w/optional PAC216B

Uncompressed Audio:
AES/EBU digital
Embedded digital
Analog with PAC216B

Compressed Audio: Dolby® D (AC-3) & Dolby E

Audio Processing:
24-bit processing
Sample rate conversion from 25-55 kHz to 48 kHz (AES)
16 or 24-bit storage
Audio Scrub ± 2.5x
Audio Click Elimination
Audio Mix

ORDERING INFORMATION

BASE SYSTEMS

PVS1022 – 2 input, 2 output Video channels with 2 MPEG Encoders & 2 MPEG Decoders.

PVS1044 – 4 input, 4 output Video channels with 4 MPEG Encoders & 4 MPEG Decoders.

PVS1062 – 6 input, 2 output Video channels with 6 MPEG Encoders & 2 MPEG Decoders.

PVS1008 – 8 output Video channels with 8 MPEG Decoders (requires Opt. 1F or 1L).

PVS1026 – 2 input, 6 output Video channels with 2 MPEG Encoders & 6 MPEG Decoders.

PVS1024 – 2 input, 4 output Video channels with 2 MPEG Encoders & 4 MPEG Decoders.

Standard on all systems –
16 channel AES/EBU Digital Audio, 16 GPIs, 8 RS-422 Ports, 100Base-T Ethernet, 600 MHz Pentium®, 128 MB, 9 GB system HD, 1.44 MB Floppy, CDROM, keyboard & mouse, Module Level Diagnostics with local monitoring connection.*

OPTIONS

Opt. 15 – Add 16 channels of digital audio for total of 32 channels.

Opt. 1F – Add Fibre Channel Networking Port.

Opt. 1L – Add Ethernet networking port.

Opt. RD – Add redundant power supplies & NT system disk.

Opt. ER – Add SNMP Remote System monitoring.

ACCESSORIES

PAC216B – 16 External Analog Audio Channels.

XLR216 – 16 ch XLR Breakout Panel.

BNC216 – 16 ch BNC Breakout Panel.

** Pentium speed, disk size, and memory size may change. The system comes standard with 100Base-T Ethernet support on NT. This is used for communications and control – it is not used for moving data files between systems. Order option 1L for Ethernet networking of data files between Profiles.*

PVS2000 PROFILE® XP MEDIA PLATFORM

FEATURES

- High definition configuration
- Up to 4 channels of HD broadcast quality video per mainframe
- SMPTE 292, 1.5 GHz serial digital I/O at 720p/1080i @ 50, 59.94 and 60 fps, 24p
- MPEG-2 @ high level, 20-80 Mb/s long GOP HD compression
- 10 hours HD storage @ 55 Mb/s with ten 36 GB RAID disks
- 16 (8 AES pairs)/32 (16 AES pairs) channel audio – AES/EBU, embedded or analog uncompressed & Dolby® E and AC-3 compressed audio
- 600 Mb/s system bandwidth
- Redundant power supply, NT disk & cooling for reliability
- Fibre Channel attached high performance RAID-3 storage
- Remote error reporting & monitoring via SNMP
- High speed Fibre Channel networking with real-time transfer rates up to 250 Mb/s
- 100Base-T Ethernet networking up to 30 Mb/s

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

HIGH DEFINITION – YES/NO/MAYBE

Not sure of your needs for high definition? Then you're not alone. With Profile XP, it doesn't matter. The PVS2000 was designed to be the most cost effective HD server on the market. Start today with your minimal needs, and grow the system as your needs grow or change the system if your needs change. Or even start with the standard definition PVS1000 and upgrade it to a PVS2000 by replacing the I/O and compression cards, the rest of the system stays the same.

UNLIMITED EXPANSION CAPABILITY

Start small and grow by adding channels or storage capacity, the Profile XP can expand in either direction without paying a cost premium up front. By adding I/O channels and codecs you can expand your PVS2000 up to 4 simultaneous channels. Need more? Add additional mainframes in a networked environment for up to hundreds of channels. Or for specific applications, you may want to have all of your channels share the same storage. With Profile Media Area Network™ real-time shared storage, multiple HD and SD profiles will be able to directly access a common storage network (future capability).

TRUE MULTI-CHANNEL OPERATION

With the 1 in/2 out configuration (PVS2012), you can play one channel to air, digitize material and preview it all at the same time. With the 2in/2out configuration (PVS2022), you can run two simultaneous time delay channels or store and forward two programs at the same time. The 1 in/3 out configuration (PVS2013) enables a 3 time zone delay – all in one box. All channels run simultaneously while still retaining enough bandwidth for high-speed fibre channel or Ethernet network transfers.

LOW COST MONITORING

Getting into HD is expensive enough without having to replace all of your monitors with High Definition monitors. To solve this problem, each HD output channel has a down converter with an analog composite and an SDI output that will work with your current monitors.

APPLICATIONS – READY TO GO

The PVS2000 uses the same software interface as the Profile PDR300 and PVS1000, which means that your HD application may already support the PVS2000. Key applications for the PVS2000 are:

- Commercial insertions
- CART machine replacement/cache
- Program Ingest & Playback
- Program Store & Forward
- Time Delay

PVS2000 PROFILE® XP MEDIA PLATFORM

SPECIFICATIONS

VIDEO CHANNELS
3 to 4 Channels:

1 in/2 out
2 in/2 out
1 in/3 out
0 in/4 out

COMPRESSION FORMAT

MPEG-2 @ HL

20 Mb/s – 80 Mb/s

GOP – 1 to 16

I, IB, IBBP

SERIAL DIGITAL VIDEO I/O
Each Module Contains 1 Input and/or 1 Output BNC Serial Digital Component Video Connector:

1.485 Gb/s SMPTE 292 I/O

Configured as 1 in and 1 out when not using embedded audio

With embedded audio, configured as 1 in or 1 out

1080i and 720p line rates

50, 59.94 and 60 fps, 24p

8 or 10-bit input resolution

10-bit output resolution

Supports 8 channels of embedded audio (4 pairs) per video channel

Frame buffers on each input

AUDIO

16 or 32 (Opt.) channels

2 AES monitor channels per 16 channel

XLR (2 RU) or BNC (1 RU) breakout panels

Uncompressed Audio:

AES/EBU digital
Embedded digital
Analog with PAC216B

Compressed Audio:

Dolby D (AC-3) & Dolby E

Processing:

Sample rate conversion from 25-55 kHz to 48 kHz (AES)

16 or 24-bit storage

Audio Scrub ± 2.5x

Audio Click Elimination

Audio Mix

Clocking:

AES inputs may be individually clocked in groups of 2

Any source locked to video

Output clocking is synchronous to selected reference

ORDERING INFORMATION

BASE SYSTEMS

PVS2012 – 1 input, 2 output video channels with 1 HD MPEG encoder & 2 HD MPEG decoders.

PVS2012 Opt. EB – Add embedded audio capability.

PVS2022 – 2 input, 2 output video channels with 2 HD MPEG encoder & 2 HD MPEG decoders.

PVS2022 Opt. EB – Add embedded audio capability.

PVS2013 – 1 input, 3 output video channels with 1 HD MPEG encoder & 3 HD MPEG decoders.

PVS2013 Opt. EB – Add embedded audio capability.

PVS2004 – 4 output video channels with 4 HD MPEG decoders (requires Opt. 1F or 1L).

PVS2004 Opt. EB – Add embedded audio capability.

Standard on All Systems –

16 channel AES/EBU digital audio, 16 GPIs, 8 RS-422 ports, 100Base-T Ethernet, 400 MHz Pentium®, 128 MB, 9 GB system HD, 1.44 MB floppy, CDROM, keyboard & mouse, module level diagnostics with local monitoring connection.*[1]

OPTIONS

Opt. 15 – Add 16 channels of digital audio for total of 32 channels.

Opt. 1F – Add Fibre Channel networking port.

Opt. 1L – Add Ethernet networking port.

Opt. RD – Add redundant power supplies & NT system disk.

Opt. ER – Add SNMP remote system monitoring.

PVS1000 UPGRADE KITS & SPARES

PVHSDI – 1.5 Gb/s HD serial digital video I/O card for PVS2000.*[2]

PVHMENC – One channel MPEG HD encoder for PVS2000.

PVHMDEC – Two channel MPEG HD decoder for PVS2000.

**[1] Pentium speed, disk size, and memory size may change. The system comes standard with 100Base-T Ethernet support on NT. This is used for communications and control – it is not used for moving data files between systems. Order option 1L for Ethernet networking of data files between Profiles.*

**[2] This card can be used as 1 input and 1 output channel except when using embedded audio in which case it can be used as 1 input OR 1 output channel.*

PFC500 FIBRE CHANNEL RAID STORAGE

FEATURES

- High bandwidth Fibre Channel link to Profile® XP
- Ten Fibre Channel drives per frame
- 73 GB or 36 GB Fibre Channel drive options
- RAID-3 arrays configured as 4 data/1 parity
- 3.5 RU low-profile chassis
- Optional redundant hot-swappable power supply
- Optional redundant hot-swappable RAID controller
- Optional hot stand-by drives
- Auto fail-over with second controller
- Redundant fans for cooling
- Drives, power supply, RAID controller & fans are all replaceable while system is in service
- Low cost expansion with PFC500E, 2 per PFC500
- Non-destructive expansion capability

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

FLEXIBILITY AND UPGRADABILITY – KEYS TO THE FUTURE

Disk drives are doubling their capacity every 12-18 months, so you'll want a server with a flexible storage architecture - both in hours of storage and in bandwidth (for when you move to high definition or add more channels).

The PFC500 is a 3.5 RU 10 drive Fibre Channel disk array with all of the key features you expect in a storage device: RAID drives, hot spares, dual power supplies (optional), redundant controllers (optional) and spare fans – all hot-swappable.

The PFC500 family comes with either 73 GB (PFC573) or 36 GB drives (PFC536). Cost effective expansion can be done with the PFC573E/536E expansion system which houses 5 or 10 drives but does not need a RAID controller. The PFC500's RAID controller will control up to 2 expansion frames (30 total drives) for truly economical storage.

The PFC500 family offers optional redundant RAID controllers. If one fails, the system will automatically switch over to the second controller.

SPECIFICATIONS

INTERFACE
Fibre Channel: copper connection

DIMENSIONS
Height: 6.07 in. (15.4 cm) (3.5 RU)
Width: 17.5 in. (44.5 cm)
Depth: 24 in. (60.9 cm)
Weight: 78 lb. (35.4 kg) max.

DRIVES
RAID-3 w/73 GB drives (PFC573)
RAID-3 w/36 GB drives (PFC536)
RAID configure 4 data & 1 parity

AC POWER
Frequency: 47-63 Hz
AC Voltage: 90-264 V RMS
Protection: - 8 amps, circuit breaker-switch

TOTAL ENCLOSURE POWER
Disks in Package: 10
Power: 400 VA (max)
Current: 4.0 A

OPERATING ENVIRONMENT
Temperature: 50-104° F (10-40° C)
Temperature Gradient: 10° C/hr
Relative Humidity: 20% - 80% (noncondensing)
Elevation:
8000 ft. (2438.4 m) @ 104 ° F (40° C) max.
10,000 ft. (3048 m) @ 98.6° F (37° C) max.

CERTIFICATION
UL, FCC Class A, CE, CSA

ORDERING INFORMATION

The PFC500 can be configured for either 73 GB (PFC573) or 36 GB (PFC536) drives. The systems come standard with 5 drives and 5 additional drives can be added (Opt. 10). Additionally a redundant power supply (Opt. PS) and/or RAID controller (Opt. CT) can be added.

The PFC500E expansion system is the same as the PFC500 but without the RAID controller. Up to two PFC500E can be connected to one PFC500.

NOTE: The number of drives required is dependant upon the number of Profile channels and the maximum video bit rate they will run. Refer to the PFC500 data sheet for specifications.

STORAGE 73 GB
PFC573 - Profile XP Fibre Channel RAID Chassis with five 75GB drives and RAID controller.
PFC573 OPT. 10 – Add five 73GB drives for a total of 10.
PFC573 OPT. PS – Add redundant power supply.
PFC573 OPT. CT – Add redundant controller.
PFC573E - Profile XP Fibre Channel RAID Expansion Chassis with five 75GB drives.
PFC573E OPT. 10 – Add five 73GB drives for a total of 10.
PFC573E OPT. PS – Add redundant power supply.

STORAGE 36 GB
PFC536 – Profile XP Fibre Channel RAID Chassis with five 36 GB drives & RAID controller.
PFC536 Opt. 10 – Add five 36 GB drives for a total of 10.
PFC Opt. PS – Add redundant power supply.
PFC Opt. CT – Add redundant RAID controller.
PFC536E – Profile XP Fibre Channel RAID Expansion Chassis with five 36 GB drives.
PFC536E Opt. 10 – Five 36 GB drives.
PFC573E Opt. PS – Add redundant power supply.

KITS & SPARES
PFC36G – Spare 36 GB RAID drive & caddy for PFC536/E.
PFC36G5 – Five 36 GB RAID drives & caddys for PFC536/E.
PFCPS – Redundant power supply for PFC518/E & PFC536/E.
PFCCT – Redundant RAID controller for PFC518/E & PFC536/E.

PFC500 FIBRE CHANNEL RAID STORAGE CONFIGURATIONS

RAID REQUIREMENTS FOR PVS1000/2000 STANDALONE CONFIGURATIONS

To determine the minimum RAID configuration, find the row with the number of video channels in your PVS and then find the column for your video rate. Where the row and column intersects, the correct minimum RAID configuration required is shown.

CHANNELS PER PVS	8 Mb/s	12 Mb/s	15 Mb/s	24 Mb/s	30 Mb/s	40 Mb/s	50 Mb/s	80 Mb/s[1]
3	5 drives 1 controller	5 drives 1 controller	5 drives 1 controller	10 drives 1 controller	10 drives 1 controller	15 drives 1 controller	20 drives 1 controller	20 drives 2 controllers
4	5 drives 1 controller	5 drives 1 controller	5 drives 1 controller	10 drives 1 controller	15 drives 1 controller	15 drives (PVS 1000) 20 drives (PVS 2000) 1 controller	20 drives 2 controllers	30 drives 3 controllers
6[2]	5 drives 1 controller	10 drives 1 controller	10 drives 1 controller	15 drives 1 controller	20 drives 1 controller	20 drives 2 controllers	30 drives 3 controllers	
8[2]	10 drives 1 controller	10 drives 1 controller	10 drives 1 controller	20 drives 1 controller	20 drives 2 controllers	25 drives 3 controllers	30 drives 3 controllers	

[1] PVS2000 series only

[2] PVS1000 series only

525/60 STORAGE TIMES

		HOURS OF STORAGE[1]			
DRIVE TYPE	BIT RATE	5 DRIVES	10 DRIVES	20 DRIVES	30 DRIVES
PFC536	4 Mb/s	47.1	94.3	188.5	282.9
(36 GB)	8 Mb/s	29.3	58.6	117.3	175.9
	12 Mb/s	21.2	42.5	85.0	127.5
	15 Mb/s	17.6	35.2	70.4	105.7
	24 Mb/s	11.6	23.2	46.5	69.7
	30 Mb/s	9.4	18.9	37.8	56.8
	40 Mb/s	7.2	14.4	28.8	43.3
	50 Mb/s	5.8	11.6	23.3	34.9
	65 Mb/s	4.4	8.8	17.7	26.6
	80 Mb/s	3.6	7.2	14.5	21.7
PFC573	4 Mb/s	95.2	190.4	280.8	571.5
(73 GB)	8 Mb/s	59.2	118.4	236.8	355.2
	12 Mb/s	43.0	96.0	192.0	257.7
	15 Mb/s	35.6	71.2	142.4	213.6
	24 Mb/s	23.4	46.8	93.6	140.4
	30 Mb/s	19.1	38.2	76.4	114.6
	40 Mb/s	14.5	29.0	58.0	87.0
	50 Mb/s	11.7	23.4	46.8	70.2
	65 Mb/s	8.9	17.8	35.6	53.4
	80 Mb/s	7.3	14.6	29.2	43.8

1)*Hours of storage with two audio and one time code channel.*

625/50 STORAGE TIMES

		HOURS OF STORAGE[1]			
DRIVE TYPE	BIT RATE	5 DRIVES	10 DRIVES	20 DRIVES	30 DRIVES
PFC536	4 Mb/s	54.2	108.4	216.8	325.2
(36 GB)	8 Mb/s	31.4	62.7	125.4	188.1
	12 Mb/s	22.0	44.1	88.1	132.2
	15 Mb/s	17.8	35.6	71.2	106.7
	24 Mb/s	11.7	23.3	46.7	70.0
	30 Mb/s	9.5	19.0	38.0	56.9
	40 Mb/s	7.2	14.5	28.9	43.4
	50 Mb/s	5.8	11.7	23.3	35.0
	65 Mb/s	4.5	9.0	18.0	27.0
	80 Mb/s	3.6	7.2	14.5	21.7
PFC573	4 Mb/s	109.5	219.0	438.0	657.1
(73 GB)	8 Mb/s	63.3	126.7	253.4	380.0
	12 Mb/s	44.5	89.0	178.0	267.1
	15 Mb/s	35.9	71.9	143.8	215.6
	24 Mb/s	23.4	46.9	93.8	140.7
	30 Mb/s	19.1	38.4	76.8	115.1
	40 Mb/s	14.6	29.2	58.4	87.6
	50 Mb/s	11.5	23.2	46.3	69.5
	65 Mb/s	8.9	18.0	35.9	53.9
	80 Mb/s	7.3	14.6	29.3	43.9

PROFILE® PDR200 JPEG-BASED VIDEO SERVER

FEATURES

- JPEG compression
- Upgradeable to MPEG-2 or DVCPRO compression
- Up to 4 video channels
- 16-32 channels of uncompressed digital audio
- Analog or digital audio/video interface options
- Scrub audio for fast accurate cueing
- RAID or non-RAID storage
- Fibre Channel networking
- Mix effects option

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

PROFILE PDR200 JPEG-BASED VIDEO SERVER

The Profile PDR200 is a highly flexible video server. It can be used in any application that involves the recording, storage, manipulation, transfer, or playback of video and audio. The PDR200 features JPEG compression, 18 GB Ultra-SCSI disk drives, 16 or 32 channels of AES/EBU digital audio, 30 Mb/s internal bandwidth, and the ability to share digitally compressed data over a Fibre Channel network.

Profile PDR200 JPEG-based video server with PDR208 storage system and PAC218 analog audio chassis

SPECIFICATIONS

SYSTEM
Audio: 16 to 32 channels, digital standard, AES/EBU, embedded; analog optional
Audio Interfaces (Digital): XLR216 Breakout Box, BNC216 Breakout Box
Audio Interfaces (Analog): PAC216 (16 channels)
Mainframe BW: 30 MB/s (approx.)
Video Channels: 2 or 4 JPEG
Video Networking: Fibre Channel (optional)
Ethernet: 10/100Base-T
Internal Storage (@ 24 Mb/s): (8) 18 GB Ultra-SCSI drives (10.5 hours)
Expansion Storage (@ 24 Mb/s): (2) PDX218 w/8 18 GB drives
RAID Support: PRS255 (5, 10, 15 or 20 18 GB drives)

TIME CODE I/O (STANDARD)
Longitudinal - LTC: 4 separate read/write channels
Vertical Interval - VITC: Each video input has a VITC reader and each output has a VITC inserter

RS-422 PORTS (STANDARD)
Eight RS-422 ports provided in a 1 RU chassis

PHYSICAL DIMENSIONS
PDR200
Size: 8.72 in. H x 19 in. W x 24.812 in. D 5 RU
Weight: 65 lbs.
Power Supply: 1184 VA (750 W)

ENVIRONMENTAL CHARACTERISTICS
Operating Temperature: 0 to +40°C
Storage Temperature: –40 to +75°C

WARRANTY
One year parts and labor

PDX218
The PDX218 is a 3 RU expansion mainframe which houses 8 caddy-based 18 GB Ultra-SCSI drives. Two PDX218s can be connected to a PDR200
Size: 3 RU (5.25 in. H x 17.75 in. W x 20 in. D)
Drives: 18 GB Ultra-SCSI
Capacity: 8 drives
Storage @ 24 Mb/s: 10.5 hours

ORDERING INFORMATION

Warranty – One year parts and labor.

PDR202D – 2 channel disk recorder with 2 JPEG codecs, 16 channel digital audio and 2 SDI channels.

PDR202A – 2 channel disk recorder with 2 JPEG codecs, 16 channel digital audio and 2 analog composite channels.

PDR204D – 4 channel disk recorder with 4 JPEG codecs, 16 channel digital audio and 4 SDI channels.

PDR204A – 4 channel disk recorder with 4 JPEG codecs, 16 channel digital audio and 4 analog composite channels.

PROFILE® PDR300 MPEG-2 BASED VIDEO SERVER

FEATURES

- Profile® PDR300 MPEG-2 Based Video Server
- MPEG-2 4:2:2 Profile @ Main Level, 4-50 Mbits/sec
- Configuration: 3 to 8 Video I/O
- 16 or 32 Channels of uncompressed digital audio
- Analog or digital audio/video interface options
- Scrub audio for fast accurate cueing
- RAID or Non-RAID storage
- Fibre Channel networking
- Mix effects option

PROFILE® PDR3000 MPEG-2 BASED VIDEO SERVER

The Profile PDR300 server complements and co-exists with the Profile PDR200 series by providing the MPEG 4:2:2 @ main level standard.

Consider this, the MPEG-2 based PDR300 video server has all the features you expect in a Profile server with a lower cost per channel and a lower cost per hour of storage for applications that utilize MPEG Compression.

With PDR300 Fibre Channel networking, material is available before it is through being transferred from one system to another, so you can start to use it more rapidly. Our scrub audio functionality provides the same sound familiar to users of tape machines. Low-cost RAID storage saves space and money. In addition, the PDR300 can be configured up to 8 output channels, making a very cost-effective playout device. The openness and flexibility of the PDR300 server reflects Grass Valley Group's commitment to integrated, scalable, standards-based solutions.

SPECIFICATIONS

SYSTEM
Audio: 16 to 32 channels, digital standard, AES/EBU, embedded; analog optional

Audio Interfaces (Digital): XLR216 Breakout Box, BNC216 Breakout Box

Audio Interfaces (Analog): PAC208 (8 ch), PAC216 (16 ch).

Mainframe BW: 30 Mb/s (approx.)

Video Channels: 3, 6, 7, 8.

Video Networking: Fibre Channel (optional)

Ethernet: 10/100Base-T

Internal Storage (@12Mb/s): (8) 18 GB Ultra-SCSI drives (20 hours).

Expansion Storage (@12Mb/s): (2) PDX218 w/ 18 GB drives (20 hours each).

RAID Support: PRS255 (5, 10, 15 or 20 18 GB drives)

User Interface: VDR Panel, Tool Box optional.

Control Panels: PRC100, LVS100.

Library/Archive: PLS200, PLS20, AMPEX DST-312/412 drives.

Time Code I/O: (standard)
Longitudinal: LTC – 4 separate read/write channels.

Vertical Interval - VITC: Each video input has a VITC reader and each output has a VITC inserter.

RS-422 PORTS (STANDARD)
Eight RS-422 ports provided in a 1 RU chassis.

PHYSICAL DIMENSIONS
Size: 8.72 in. H x 19 in W x 24.812 in. D (5 RU).

Weight: 0 65 lbs.

Power Supply: 1184 VA (750 W).

ENVIRONMENTAL CHARACTERISTICS
Operating Temperature: 0 to +40°C

Storage Temperature: –40 to +75°C

WARRANTY
One year parts and labor

Profile PDR300 MPEG-2 Based Video Server

The PDR300 offers MPEG 4:2:2 compression from I-frame only to long-GOP, up to 16. Frame accurate trimming is available at any GOP structure and seamless playing of clips at any bit-rate or GOP structure.

ORDERING INFORMATION

PDR312D
3 channel (1 in, 2 out) disk recorder with 1 MPEG encoder, 2 MPEG decoders, 2 JPEG codecs and 16 ch digital audio (serial digital)

PDR312A
3 channel (1 in, 2 out) disk recorder with 1 MPEG encoder, 2 MPEG decoders, 2 JPEG codecs and 16 ch digital audio (analog composite)

PDR324D
6 channel (2 in, 4 out) disk recorder with 2 MPEG encoders, 4 MPEG decoders, 2 JPEG codecs and 16 ch digital audio (serial digital)

PDR324A
6 channel (2 in, 4 out) disk recorder with 2 MPEG encoders, 4 MPEG decoders, 2 JPEG codecs and 16 ch digital audio (analog composite)

PDR316D
7 channel (1 in, 6 out) disk recorder with 1 MPEG encoder, 6 MPEG decoders, 2 JPEG codecs and 16 ch digital audio (serial digital)

PDR316A
7 channel (1 in, 6 out) disk recorder with 1 MPEG encoder, 6 MPEG decoders, 2 JPEG codecs and 16 ch digital audio (analog composite)

PDR308D
8 channel (8 out) disk recorder with 8 MPEG decoders, 2 JPEG codecs and 16 ch digital audio (serial digital)

PDR308A
8 channel (8 out) disk recorder with 8 MPEG decoders, 2 JPEG codecs and 16 ch digital audio (analog composite)

PROFILE® PDR400 DVCPRO-BASED VIDEO SERVER

FEATURES

- 4 or 6 DVCPRO25 channels
- 2 or 3 DCVCPRO50 channels
- 16 or 32 channels of uncompressed digital audio
- Analog or digital audio/video interface options
- Scrub audio for fast accurate cueing
- Optional internal mix/effects board
- RAID or non-RAID storage

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

Profile PDR400 DVCPRO-based video server

PROFILE PDR400 DVCPRO-BASED VIDEO SERVER

The PDR400 video server provides full compatibility with DVCPRO in the world's leading, broadcast-quality Profile video server. Upgrades are available for existing PDR200 customers, ensuring a smooth and cost-effective transition to DVCPRO.

With up to 6 DVCPRO codecs, you can digitize material from 5 VTRs or cameras (of any format) simultaneously and use the sixth channel for monitoring. This makes the PDR400 a very cost effective system for recording and playout.

The PDR400 server provides faster than real-time transfer of compressed video via Fibre Channel network interfaces.

The PDR400 can be software upgraded from DVCPRO25 to DVCPRO50.

SPECIFICATIONS

SYSTEM
Audio: 16 to 32 channels, digital standard, AES/EBU, embedded; analog optional

Audio Interfaces (Digital): XLR216 Breakout Box, BNC216 Breakout Box

Audio Interfaces (Analog): PAC216 (16 channels)

Mainframe BW: 30 Mb/s (approx.)

Video Channels: 4 or 6 DV25, 2 or 3 DV50

Video Networking: Fibre Channel (optional)

Ethernet: 10/100Base-T

Internal Storage: (8) 18 GB Ultra-SCSI drives (9 hours DV25)

Expansion Storage (@ 24 Mb/s): (2) PDX218 w/18 GB drives (9 hours each DV25)

RAID Support: PRS255 (5, 10, 15 or 20 18 GB drives)

TIME CODE I/O (STANDARD)
Longitudinal - LTC: 4 separate read/write channels

Vertical Interval - VITC: Each video input has a VITC reader and each output has a VITC inserter

RS-422 PORTS (STANDARD)
Eight RS-422 ports provided in a 1 RU chassis

PHYSICAL DIMENSIONS
PDR400
Size: 8.72 in. H x 19 in. W x 24.812 in. D 5 RU

Weight: 65 lbs.

Power Supply: 1184 VA (750 W)

ENVIRONMENTAL CHARACTERISTICS
Operating Temperature: 0 to +40°C

Storage Temperature: –40 to +75°C

WARRANTY
One year parts and labor

PDX218
The PDX218 is a 3 RU expansion mainframe which houses 8 caddy-based 18 GB Ultra-SCSI drives. Two PDX218s can be connected to a PDR400

Size: 3 RU (5.25 in. H x 17.75 in. W x 20 in. D)

Drives: 18 GB Ultra-SCSI

Capacity: 8 drives for a total capacity of 144 GB

Storage: 9 hours DV25

ORDERING INFORMATION

PDR404D
4 channel disk recorder with 4 DVCPRO 25 codecs, 16 channel digital audio and 4 SDI channels.

PDR404A
4 channel disk recorder with 4 DVCPRO 25 codecs, 16 channel digital audio and 4 analog composite channels.

PDR406D
6 channel disk recorder with 6 DVCPRO 25 codes, 16 channel digital audio and 6 SDI channels.

PDR406
6 channel disk recorder with 6 DVCPRO 25 codes, 16 channel digital audio and 6 analog composite channels.

PDR200 MPEG-2 4:2:2 AND DVCPRO UPGRADE KITS

FEATURES

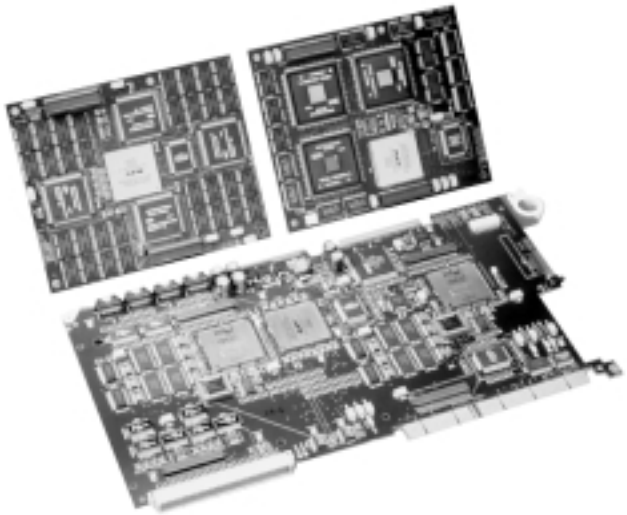
PDR200 MPEG-2 4:2:2 Upgrade Kits

- MPEG-2 4:2:2 Profile @ main level
- Variable configurations: 1 input/2 outputs, 2 inputs/4 outputs, 1 input/6 outputs, 0 input/8 outputs
- 4 Mb/s to 50 Mb/s bit rates
- Variable GOP structures from 1 to 16 pictures
- I, IB, IBBP encoding
- I frame encoding
- 4:2:0 and 4:2:2 sampling
- Frame accurate cuts editing with any GOP

PDR200 DVPCPRO Upgrade Kits

- DVCPRO 25 compression (4 or 6 channel)
- DVCPRO 50 compression (2 or 3 channel)

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.



PDR200 MPEG-2 4:2:2 Upgrade Kits

PDR200 MPEG-2 4:2:2 UPGRADE KITS

MPEG-2 4:2:2 Profile @ Main Level has been selected as the industry standard for professional broadcasters. It provides professional broadcast facilities with the video quality required for their eventual transition to digital TV. Its high bit rate and variable GOP structure allows broadcasters to select the video quality appropriate for their application.

PDR200 DVCPRO UPGRADE KITS

The DVCPRO Upgrade kit provides users of the PDR200 with DVCPRO Compression. The addition of DVCPRO compression allows facilities who have standardized on the DVCPRO compression format to utilize the Profile Video Server. DVCPRO can be used in a variety of applications from News and Production to on-air playout.

SPECIFICATIONS

MPEG-2 4:2:2 UPGRADE KITS
MPEG-2 Channels:

Channels: Inputs (encoders)/ Outputs (decoders):
3 channels (1 in/2 out)
6 channels (2 in/4 out)
7 channels (1 in/6 out)
8 channels (0 in/8 out)

MPEG-2 Bit Rates: 4 Mb/s to 50 Mb/s (any GOP structure)

Video Sampling: 4:2:2 or 4:2:0

GOP Structures:

User selectable, 1 to 16 pictures; I Frame only, IB, IBBP

DVCPRO UPGRADE KITS
DVCPRO Channels:

4 or 6 DV25

2 or 3 DV50

DVCPRO Bit Rates –

50 Mb/s (fixed)

25Mb/s (fixed)

ORDERING INFORMATION

P2MPG12
PDR200 Upgrade kit: adds one MPEG input (encoder) and 2 MPEG output (decoder) channels.

P2MPG04
PDR200 Upgrade kit: adds 4 MPEG output (decoder) channels.

PDRFAUD
PDR200 Upgrade kit: adds 16 channels of digital audio to a PDR100/200/300/400.

PDFV04
PDR200 Upgrade Kit: adds 4 DVCPRO codecs.

PDFV02
PDR200 Upgrade Kit: adds 2 DVCPRO codecs.

INSYNC™ AUTOMATIC MIRRORING SOFTWARE FOR PROFILE

KEY FEATURES

- Automatically keeps two Profile systems synchronized with identical content
- Supports PDR200/300/400 & PVS1000/2000
- Restores file system after repair
- Runs independent of application software
- Transparent operation
- Low latency
- Supports both Fibre Channel and Ethernet connections
- Any networked Profile server can be designated as backup
- Simple operation
- Error logging
- New! Bi-directional mirroring mode

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

AUTOMATIC MIRRORED OPERATIONS

Regardless of how reliable any broadcast device is, for mission critical applications like broadcast, many facilities require full redundancy in their play-to-air servers. Normally the responsibility of the controlling application, disk mirroring can add significantly to the complexity of the application. Now with InSync, the task of mirroring is done within the Profile system. As such, it can operate with any application. InSync assures that the contents of two systems are maintained as a mirrored pair. In event of a failure the user routes control of the replay function to the Backup system

SPECIFICATIONS

PROFILE REQUIREMENTS

Profiles should be configured identically*1

Storage on both units should be identical*2

Units must be networked

Supports one main and one backup server as well as a pair of servers, each of which back-up the other

Allows a substitute backup server to be specified under failure conditions

PROFILE NETWORK CONNECTIONS

Fibre Channel (requires Opt 1F)

Ethernet (requires Opt 1L)

START-UP MODES

Backup: copies main files to the backup

Update: copies backup files to the main

None: simply start the mirror process

OPERATING MODES

Event Based: automatically mirror events as they occur on the Main

Periodic: synchronize files system at user defined intervals

Manual: manually synchronize files system

Event based & Periodic Mirroring can be optionally disabled

*1 *If not configured the same, care should be taken to ensure that the same number of active channels (channels used for record and play) are available on each system.*

*2 *If storage systems are not the same, care should be taken to ensure that the unit with the least amount of storage sets the limit for operation.*

MIRRORED OPERATIONS (EXAMPLES)

Main Server	Backup Server
New Clip/Group	Clip/Group copied to Backup
Delete Clip/Group	Clip/Group deleted on Backup
Edit File	Edit changes copied to Backup (user initiated or during periodic backup)

Mirroring takes place whenever a new file is recorded on the main server either via a baseband record or a network transfer.

OPERATION WHEN A FAILURE OCCURS

If the Main server fails, or needs to be taken off line for maintenance or updates, the Backup unit takes over as the Main allowing both record and replay operations to continue. When the unit is brought back on-line, InSync provides an Update mode, which performs a user initiated re-synchronization. Any changes made while the system was off-line will be reflected on the server when it is brought back on-line. With high-speed fibre channel networking, this re-synchronization occurs quickly.

In addition, when a server is taken off-line, a third server can be added to ensure continued mirrored operation.

ORDERING INFORMATION

INSYNC
XP InSync Software, Single License, distributed on CD with user manual.

PROFILE®
TOOL BOX SOFTWARE

Profile Tool Box

FEATURES

Tool Box Editor
- Log and capture new media
- Cuts-only sequence editing
- Control of remote Profile servers from a Windows® NT computer
- Up to four concurrent remote editing sessions per Profile system

Tool Box List Manager
- Record incoming audio and video at predetermined times
- Send incoming video directly to an output
- Assemble a playlist of commercials and programs
- Schedule transfers to/from the Profile Fibre Channel network
- Supports both PDR series and Profile XP

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

PROFILE TOOL BOX

Tool Box for Profile is a set of integrated basic applications for the Profile Video Server. The applications have a common graphical user interface, and they perform many of the simple daily tasks required by broadcast facilities. Tool Box allows users to perform basic cuts-only editing, build and execute lists of events, and manage lists of archive and network transfers.

PROFILE®
TIMEDELAY SOFTWARE

TimeDelay Application Software

FEATURES

Profile TimeDelay
- Single feed/multiple outputs – providing time delay capability for up to three time zones
- Two feeds/two outputs – providing simultaneous time delay for two programs across one time zone
- Compression support JPEG/MPEG/DVCPRO
- Programmable 24-hour start time, allowing unattended operation
- Graphical user interface
- Remote operation
- System lockout for built-in security
- Supports both PDR series and Profile XP

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PROFILE TIMEDELAY

TimeDelay for Profile is a software application that automates the labor-intensive task of manually programming time delays and program shifts. TimeDelay provides the ability to synchronize record and play channels using timecode. Users have the ability to save configuration settings for restoring or saving of material to a new system.

PROFILE APPLICATION SOLUTION PARTNERS

Automation
- Abit
- ANN Automation
- Aveco
- Avid NewsCutter
- Crispin Corporation
- Drake Automation Ltd.(Encoda Systems)
- Entere Automation
- Encoda Systems
- FloriCal Systems
- Floripa Technologia
- GIAG
- The HyperMedia Group
- IBIS
- iNews
- KEOPS Technologies, Inc.
- Harris Automation (Louth Automation)
- NEC
- Nverzion (Computer Engineering)
- Odetics Broadcast
- OmniBus Systems
- Parker Vision
- Phillips (Alamar)
- Pro-Bel
- Signum
- SGI
- SGT
- Societa' Italiana Software
- Softron Intelligent Broadcasting Systems, Inc.
- Sundance Digital, Inc.
- T.D-K Associates Ltd.

Data Management
- EMC² (Avalon Consulting Group)
- IBM

Editing
- Avid
- Editing Technologies Corporation
- Editware
- Lift
- Panasonic

HDTV
- VidiSys

Media Management
- Ascential (Informix Software, Inc.)
- Bitcentral
- Convera (Excalibur)
- Media DVX
- Newspath Limited
- User Interface Design
- Virage
- Pathfire (VNI)

Slow Motion/Super Slow Motion
- Brauch Electronik
- Numeric Video

Sports Analysis
- Dixon Sports Computing

Time Delay
- Time Logic

Miscellaneous
- ICT
- Lade Profesional S.A.
- Planon Telexpertise Inc.
- Proximity Corporation
- Question D'Image
- Telestream

Control Panels
- DNF Controls
- Numeric Video
- Hi-Tech Systems
- PTV Professional TeleVision

PRODUCTION SYSTEMS

Digital production systems step up to efficiency and cost challenges

What a difference a year makes. Twelve months ago, broadcasters and other high-quality content providers were awash in ad sales; now they're working hard to keep those revenue streams full. Not to mention trying to exploit new revenue opportunities without radically expanding their production teams or technologies.

As a result, smart digicasters are taking a hard look at how production systems can make the most of their capital and workflow investments. And many like what they see in a new class of product: the Grass Valley Zodiak Video Production switcher.

The far-and-away leader in terms of price performance, the Zodiak switcher offers users a cost-effective way to replace aging analog switchers—or build new digital operations from scratch. It features 2.5- and 3 mix/effects (M/E) configurations, low power consumption, and a seven rack-unit size—perfect for mobile and OB van, sports arena, and mid- and small-sized broadcast applications.

But the real power of Zodiak is under the hood. It supports up to four keys per full M/E for graphics or logos over a background video—and a utility bus per full M/E for such functions as external masks, video-in-wipe-border operations, or video wipe transitions. Each keyer has an integrated channel of digital video effects.

Each Zodiak M/E also has a complex wipe generator for transitions and a simple pattern generator for each keyer, as well as support for the Grass Valley E-MEM™ effects memory system. And all keyer and background busses feature source-specific YUV color correction and other video processing, including optional RGB color correction for all M/E keyers.

With a plug-and-play design, the Zodiak switcher can ease the transition from analog to digital. In fact, its control panel drops into the console cutout for the popular Grass Valley Model 250, Model 3000-2, and Model 4000-2B switchers—and its familiar Grass Valley interface streamlines user training.

What's more, the Zodiak switcher may be upgraded to take advantage of emerging high definition production requirements now being considered for many digicasting facilities.

The Zodiak system joins the Grass Valley Group's widely heralded and adopted Kalypso Video Production center family, which combines industry-leading switching and powerful M/E capabilities with an open, networked architecture that offers a precedent-setting degree of operational integration. The Kalypso family's latest features include a transform engine for digital effects, including a new Kalypso Kurl option that provides page turn, page roll, and intersecting plane capabilities; M/E control of internal or external effects; and the ability to roll multiple devices easily.

More than 150 Kalypso systems have been delivered in the product's first year of availability to production leaders worldwide.

ZODIAK™ DIGITAL PRODUCTION SWITCHER

FEATURES

- Powerful Mix/Effects (M/E) Architecture
  - 4 Keyers per full M/E for even more flexible layering
  - 1 Utility Bus per full M/E for video in borders, video wipe patterns, or masking
  - Built in DVE on every keyer plus external DVE support
  - Six Wipe Pattern Generators on each full M/E
  - These powerful features are on M/E 1 and 2 of the 2.5 M/E model, and added as a full-featured M/E on the Program/Preset row of the 3 M/E model
- Available in Two Powerful Models: 2.5 M/E and 3 M/E Serial Digital
  - 2.5 M/E Model comes with 64 inputs and simple Mix/Cut Program Preset row with 3 linear downstream keyers
  - 3 M/E model comes with 64 inputs and an additional full-featured M/E that augments the 3 linear downstream keyers on the Program/Preset row
- The Grass Valley interface that set the industry standard
  - Familiar Grass Valley look and feel
  - Intuitive, easy to use touch-screen menu display
- 100 Frame Still Store with Animation
- Easy Upgrade Path from 2.5 to 3 M/Es

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

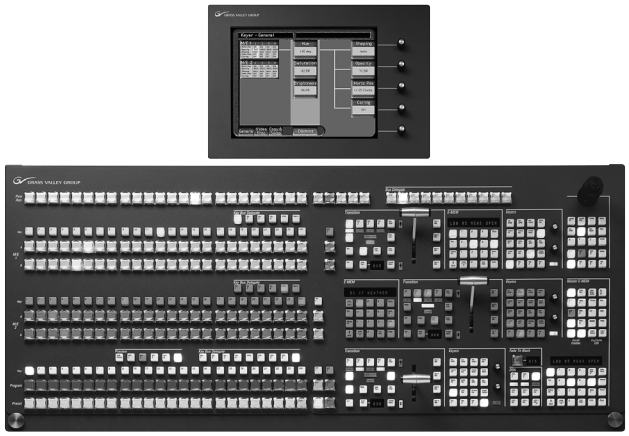
A NEW LEVEL OF PERFORMANCE IN A MID-MARKET PRODUCTION SWITCHER

The Grass Valley™ Zodiak™ switcher is an intuitive, full-featured production system that lets users in sports arena, mobile, and broadcast facilities cost-effectively expand their production capabilities or replace their aging analog switchers. Compact, powerful, and affordable, it offers more production power than any other switcher in its class.

The Zodiak switcher family includes 2.5 and 3 mix/effects configurations. Both feature the familiar Grass Valley interface, low power consumption, and fit into a compact seven rack-unit frame.

POWERFUL M/E ARCHITECTURE

With four keyers per M/E, Zodiak offers outstanding capability for compositing keys such as logos and graphics. In addition, each keyer in every M/E can perform chroma keys using Grass Valley's Chromatte™ Advanced Dual Chroma Keyer. Each full M/E features a utility bus which can be used to enhance the production look by inserting a video signal as a wipe border, a mask source or as a wipe shaped by video. Each keyer has its own basic wipe pattern generator for preset-patterns and masking applications while still leaving the main pattern generator for wipe transitions.



Zodiak™ Digital Production Switcher

ENHANCED EFFECTS AND TRANSITIONS

With up to twelve channels of built-in digital effects, you can perform 2D transforms in 3D space, perform page turns, and create dazzling effects such as star trails, montage, glow, defocus, extrude, and outlines. Each full keyer has it's own dedicated digital effects channel. In addition, up to four pairs of effects-send channels are available for interfacing to external DVEs.

ANIMATION CAPABLE STILL STORE

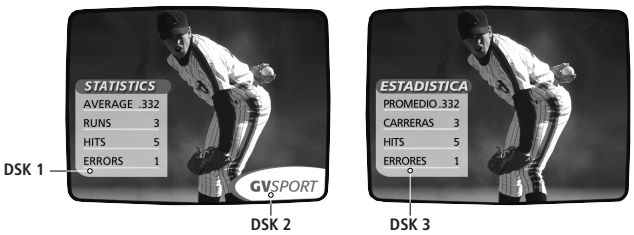
Zodiak's still store system has up to four simultaneous outputs that can be video, key or mask in any combination. The still store system has a memory buffer for storing up to 100 stills of video and/or key. An internal hard drive provides off line storage for thousands of frames. All four outputs may be animated for short graphics and video animations. Animations, such as a revolving station ID, which do not fill the whole screen, can use our subframe storage technique to store four, nine or twenty-five frames of animation in the space of a single full-size frame of memory.

More Power in Every M/E - With four keyers, two backgrounds, a utility bus, and up to four chroma keyers, Zodiak give you more power in a single M/E than any other switcher in its class.

ZODIAK™ DIGITAL PRODUCTION SWITCHER

FLEXIBLE PROGRAM/PRESET ARCHITECTURE

Put as much power in the program/preset row as you need. The 2.5 M/E version has a basic program/preset with cuts, mixes and 3 simple downstream keyers (DSKs) for linear and luminance keying. This model features 64 inputs and 9 auxiliary buses (including two effects/send pairs). The 3 M/E version has a program/preset deck with all the capability of the two upstream M/Es, including four full-function keyers each with a dedicated digital effects engine. In addition, program/preset still has the three linear downstream keyers for a total of seven DSKs. This model features 64 inputs and 13 auxiliary buses (including four effects/send pairs).



Downstream Keying for Multi-Channel Branding - with three keyers (DSK's) and automatic key substitution, Zodiak makes it easier to brand a program for two different markets

RGB COLOR CORRECTION

Each keyer, background bus and utility bus on each full M/E comes standard with solarization, posterization, mosaic capability and YUV color correction. When more creative control is desired, optional RGB color correction can be added to all full keyers (eight keyers in the 2.5 M/E version and twelve keyers in the 3 M/E version).

EASY TO UPGRADE

Zodiak's architecture makes upgrading a breeze. The 2.5 and 3 M/E systems share the same basic frame and control panel. Upgrading consists of adding an M/E card and power supply to the frame and swapping out the input crosspoint board. Swap out a handful of keycaps on the control panel, and it's done! No refitting or recabling is required.

HIGH AVAILABILITY AND SERVICEABILITY

The boards and power supplies in the Zodiak frame can be hot swapped, minimizing down time during repair operations. In addition, the backplane contains no active components, other than two socketed configuration PROMs. This passive backplane architecture minimizes the risk of a failure that would require a full-frame retrofit.

SMOOTH INSTALLATION WITH SUPPORT FROM THE FACTORY

With the familiar Grass Valley interface, operators will feel right at home with Zodiak. The switcher's simple, straight forward design makes it easy to integrate into existing production facilities. In fact, the Zodiak control panel drops right into the existing console cutout for the popular Grass Valley Model 250, Model 3000-2, or Model 4000-2B switchers. And its compact, seven rack-unit (RU) frame frees up space for other equipment, such as Grass Valley 8900 Series and 2000 Series signal conversion modules.

ORDERING INFORMATION

ZODIAK-25
2.5 M/E Zodiak including control panel with redundant power supply, 2.5 M/E frame with redundant power supply, still store, 8 keyers, 3 DSKs, 1 dual chroma keyer, 64 SDI Inputs

ZODIAK-30
3 M/E Zodiak including control panel with redundant power supply, 3 M/E frame with redundant power supply, still store, 12 keyers, 3 DSKs, 1 dual chroma keyer, 64 SDI Inputs

ZODIAK-25TE
2.5 M/E Zodiak including control panel with redundant power supply, 2.5 M/E frame with redundant power supply, still store, 8 keyers, 3 DSKs, 1 dual chroma keyer, transform engines on M/E 1 and 2, 64 SDI inputs

ZODIAK-30TE
3 M/E Zodiak including control panel with redundant power supply, 3 M/E frame with redundant power supply, still store, 1 dual chroma keyer, transform engines on all three M/Es, 64 SDI inputs

ZOD-UPG-3ME
Zodiak upgrade from 2.5 M/E to 3 M/E includes M/E module, key caps, and frame power supply

ZOD-TEME-S
Transform engine field upgrade for M/E 1 and M/E 2 keyers

ZOD-TEPP-S
Transform engines field upgrade for M/E 3 (Program/Preset) keyers (for Zodiak-30 only)

ZOD-RGB
Primary RGB color correction on all full M/E background and keyer buses

ZOD-RGB-S
Primary RGB color correction field upgrade on all full M/E background and keyer buses

ZOD-CHROMA
One pair floating chroma keyers with dynamic allocation to any full keyer

ZOD-CHROMA-S
Field upgrade to add one pair floating chroma keyers with dynamic allocation to any full keyer

ZOD-FRAMEPS
Spare redundant power supply for electronics frame

ZOD-PANELPS
Spare redundant power supply for control panel

ZOD-NETCEN
SNMP remote monitoring agent for NetCentral

ZOD-NETCEN-S
Field upgrade for SNMP remote monitoring agent for NetCentral

KALYPSO™ VIDEO PRODUCTION CENTER

FEATURES

- Powerful new mix/effects architecture
  - 4 keyers per M/E for even more flexible layering
  - 2 utility buses per M/E allow a separate program mix, video in borders, or masking
  - Split M/E technology – 2 M/Es in one
  - Programmable clean feed for multi-client productions
- Built-in device control for Profile®, SMS-7000 routers, DVEs, VTRs and more (options for controlled device may be required)
- Built-In DVE with 6 channels of effects plus external DVE support
- The Grass Valley interface that set the industry standard now with advanced source name displays, touch screen intuitive menu system, and exclusive M/E status displays
- Up to 80 inputs and 48 outputs
  - 46 outputs assignable to any combination of program, preview, clean feed or auxilliary bus outputs
- 100 Frame still store with animation capability
- Multi-panel and multi-frame capability
- Six wipe pattern generators per M/E
  - 2 for transitions and keyer functions with extensive patterns
  - 4 with basic patterns for masks, key fill and border wash, and preset patterns
- Available in two powerful models – 2 M/E and 4 M/E serial digital

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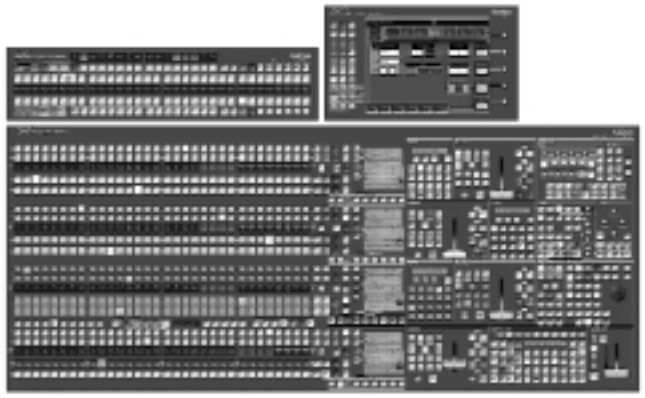
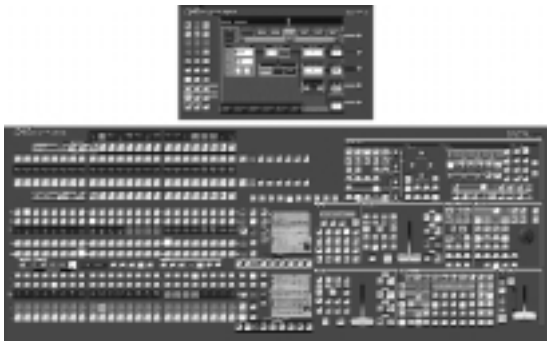


Kalypso 4M/E



Kalypso 2M/E

SETTING A NEW STANDARD FOR LIVE PRODUCTION

The Kalypso video production center puts everything you need for live video production right at your fingertips. Kalypso builds on the legendary Grass Valley switcher technology with an advanced Mix/Effects architecture that gives you unprecedented levels of keying and compositing with two powerful new features. With DoubleTake™ Split M/E technology you can divide the 4 keyers in each M/E between two separate background transitions in a single M/E bank. FlexiKey™ programmable clean-feed technology lets you create multi-client live programs using any combination of keys for up to four program or clean feeds on every M/E and PGM/PST.

THE INDUSTRY STANDARD GRASS VALLEY INTERFACE

The classic layout and quality craftsmanship of Grass Valley switchers has been advanced with a new level of control and integration. You can switch with confidence with the reliable switches and lever arms, and the intuitive, familiar panel layout. A rich set of new features add a significant level of control for building complex, multi-client productions. User-programmable Source Name Displays make it easy to identify sources on the fly. 32x32 pixel, three-color displays clearly identify sources and groups of sources. The all new M/E Status Displays tell you at a glance what sources, keys and transitions are occurring in each M/E. Add to this an intuitive touch-screen menu system, and you have a production center built for the demands of live production.

KALYPSO™ VIDEO PRODUCTION CENTER

ENHANCED EFFECTS AND TRANSITIONS

With up to six channels of built-in digital effects, you can perform 2D transforms in 3D space along with traditional 2D effects such as resize, locate, rotate, crop, and blurs. The expanded effects send system can feed all six internal effects engines plus up to four external effects devices simultaneously, for a total of 10 effects channels of video and key. Any M/E bus can use the effects send system including all keyers, both background buses and both utility buses.

BUILT-IN DEVICE CONTROL

Kalypso features an elegant user interface for changing SMS-7000 router sources. You also have runtime control for Profile® clips, VTRs, character generators, external digital effects and many other source devices (some controlled devices may require optional software or hardware). The control you need in the fast-paced production environment is available right from the Kalypso control panel.

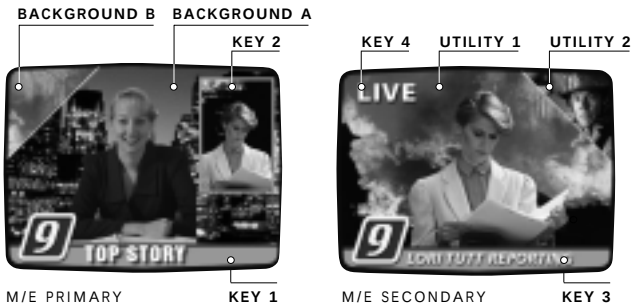
POWERFUL M/E ARCHITECTURE

With four keyers per M/E, Kalypso offers outstanding capabilities for compositing keys such as logos and graphics. In addition, each keyer in every M/E can perform chroma keys using Grass Valley's Chromatte™ Advanced Dual Chroma Keyer. Borderline® Generators are included on every keyer for drop shadows, outlines and extrudes on keyed sources. All of these powerful features can be used in two new M/E modes – Split M/E and Programmable Clean Feed, truly advancing the state of live production.

DOUBLETAKE™ SPLIT M/E

You can share the 4 keyers between 2 separate background transitions in DoubleTake mode. For example, 2 keyers can be placed over the primary background transition at the same time that the other 2 keyers are placed over a second background transition (using the 2 utility buses). This effectively creates 2 complete M/E outputs from a single M/E bank! These two outputs are available at the same time and can have their own preview and clean feed outputs as well. Thus a 4 M/E Kalypso effectively becomes an 8 M/E production system.

In addition, the secondary output can layer specific keys over a transparent background (black) and provides a separate key output for downstream compositing. This is helpful for expanding the keying power in certain applications. Thus the secondary output is like layering mode on the Model 4000, but the primary output is still a full Mix/Effects bank. Again, this is like getting the power of 8 M/E's in a 4 M/E Kalypso!

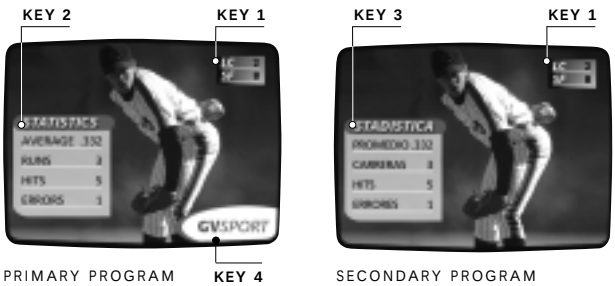


Split M/E. In the example above, Key 1 and Key 2 are composited over the main background transition (A/B buses) and sent out on the primary program output. At the same time, Key 3 and Key 4 are composited over a totally independent background transition using the Utility 1 and Utility 2 buses. Each of these two composites have their own clean feed and preview outputs, effectively creating two complete M/E outputs from a single mix/effects bank. This can be done on any or all M/Es effectively giving you the power of 8 M/Es in a 4 M/E switcher.

FlexiKey™ PROGRAMMABLE CLEAN FEED

Kalypso features the most flexible clean feed system in the industry. The programmable clean feed mode makes it possible to create two completely independent, simultaneous teleproductions with the ultimate in flexibility. FlexiKey is invaluable for productions where there are two clients for the same program or in productions where an event is broadcast live while a slightly different version is simultaneously recorded on videotape. With FlexiKey, any set of keys can be removed from the clean feed output (so only the primary client sees logos and identification, for example). In addition, you can automatically substitute keys so that a graphic for the primary client can automatically be replaced with a different graphic for the secondary client.

Kalypso has absolutely the most flexible downstream key (DSK) system – period! The program/preset bank in Kalypso offers up to four completely separate program outputs each of which can have any subset of the four DSKs. Now you can customize which DSKs go to which program output for up to four different feeds.



Programmable Clean Feed. In the example above, which uses a single M/E, Key 1 is programmed to appear on both the Primary and Secondary output. Key 3 replaces Key 2 on the secondary output and Key 4 is programmed to appear only on the Primary output. By utilizing additional M/Es even more complex and customized outputs can be built.

KALYPSO™ VIDEO PRODUCTION CENTER

SuperStill™ ANIMATION CAPABLE STILL STORE

Kalypso's still store system has up to eight simultaneous outputs which may be video, key or mask in any combination. The still store system has a memory buffer for storing 100 stills of video and key. An internal hard drive provides additional storage for thousands of frames. Video or graphics frames may be grabbed from any input or may be downloaded from a 100Base-T Ethernet connection. All eight outputs may be animated for short graphics or video animations.

EMMY®-AWARD WINNING E-MEM® TECHNOLOGY NOW WITH THE SuperShot™ ADVANCED SHOTBOX

Recall E-MEMs fast with the new SuperShot advanced shot box panel. This option gives you instant access to five pages, each with twenty effects, at the touch of a button. You can retrieve your regular setups and store them in SuperShot for instant recall. Each setup is identified so you can tell at a glance which M/Es and other resources will be used.

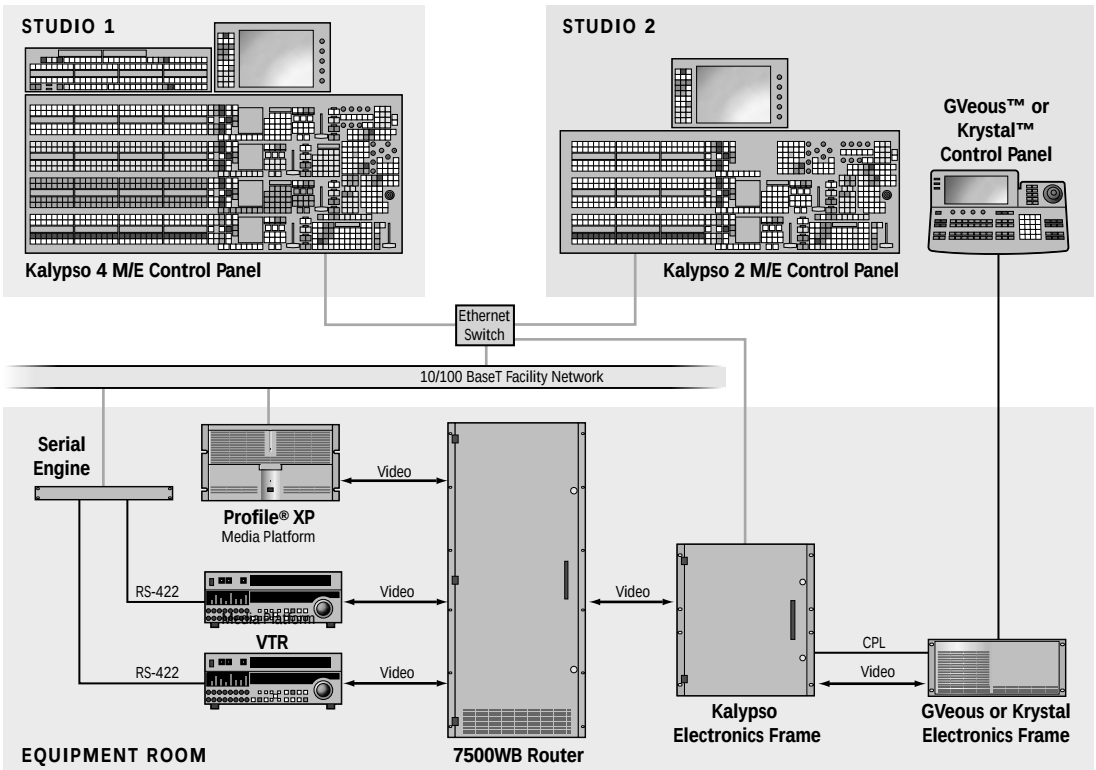
KALYPSO – A NETWORKABLE, SHARED RESOURCE

Kalypso is designed for today's integrated production facility. The smooth, on board interface to Routers, Profiles, VTRs and external DVEs simplifies building an integrated production suite. Kalypso goes beyond merely controlling devices, however. You can have two Kalypso control panels simultaneously interfacing to a single frame, or one control panel to two frames. The 100Base-T Ethernet interface makes it easy to acquire content from computer based systems and to manage your Kalypso resources. Furthermore, Kalypso's chroma keyers, still-store outputs and internal effects are floating resources which are available on demand to be used by any M/E on the system. This means you no longer need to purchase extra options just to avoid an "on-air trap." Kalypso truly provides one of the most cost-effective production solutions on the market today.

ORDERING INFORMATION

KALYPSO VIDEO PRODUCTION CENTER

For specifications and ordering information, see order guide 2WW-9403.



Resource Sharing – Multiple Kalypso panels can simultaneously use resources in the same frame. The 100Base-T Ethernet is used for real-time panel control and for facility management and acquiring content.

MODEL 1200
COMPONENT DIGITAL PRODUCTION SWITCHER

FEATURES

- 4:2:2:4 digital video signal processing
- Unmatched keying power for its class
- Ideal system for facilities transitioning from analog to digital
- Compact control panel provides familiar, easy-to-use interface
- E-MEM® effects memory system and effects send capability
- 16 Video and key source inputs
- Extensive library of wipe patterns
- DTV ready – compatible with 16x9 picture formats

Model 1200 Serial Component Digital Production Switcher

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

MODEL 1200 SERIAL COMPONENT DIGITAL PRODUCTION SWITCHER

The Model 1200 Serial Component Digital Production Switcher delivers large switcher performance in a unique compact design. We've incorporated years of customer feedback into the Model 1200 control system. The switcher's built-in EL menu display gives you instant access to system setup, diagnostics and parameter adjustment. With keying power unmatched by any system in its class, plus a control panel that gives you a whole new level of ease of use and integrated control, the Model 1200 is a powerful, easy to use digital switcher.

With its component digital design and 10-bit processing, the Model 1200 delivers outstanding video fidelity and consistent video transparency, so you enjoy keys that are sparkling clean and the creative freedom that comes from a virtually unlimited number of record generations.

E-MEM SYSTEM

Standard E-MEM provides storage for 20 complete switcher setups. A 3.5 in. floppy disk drive is included for storage of E-MEM Effects set-ups.

BETTER CHROMA KEYS AND BORDERLINE KEY EDGING

The foreground keyers can be enhanced with Chromatte™ Chroma Key. Advanced chroma capabilities include background and foreground suppression and the Grass Valley patented Secondary Hue Suppression process to eliminate color fringing. All the keyers have their own individual matte generators and you can fit them with another Grass Valley exclusive – Borderline® key edge generators. The Borderline option allows all keyers to be enhanced with edging effects, including border, shadow extrude and outline.

SECOND KEYER AND 3D KEYING

In addition to luminance, linear, chroma key and preset wipes, the Model 1200 gives you added flexibility of an optional second keyer in the Mix/Effects (M/E) subsystem. Also available for the Model 1200 is our proprietary Z-key Depth Processor which enables you to key in a third dimension with the system's M/E keyers. Z-Key takes "z-axis" data from Grass Valley digital effects systems to key elements in 3D space.

4:4:4 KEYING CAPABILITY

The very powerful keying capabilities of the Model 1200 include 4:4:4 digital format chroma keys. Using two physical inputs, you can create the highest quality digital source chroma keys possible in a compact production switcher.

ADDITIONAL FEATURES

With your integrated effects system, the Model 1200 offers all-digital posting power and versatility. It can be configured with up to 16 inputs, which can be either analog or digital signals.

Two auxiliary buses with the Model 1200 effects send system let you feed digital effects devices with the same sources that feed the switcher

CONFIGURED FOR YOUR FUTURE

With analog and digital input capability, the Model 1200 is an excellent choice for serial digital conversion. The Model 1200 Digital Switcher has the flexibility and features that you can count on now and for a long time to come.

SPECIFICATIONS

INPUTS
Primary Video External Key: 16 (analog or digital)

OUTPUTS
Program, preview, clean feed, aux, buses, key

CONTROL PANEL

Dimensions	cm	in.
Height	27.1	10.66
Width	73.7	29.0
Depth	44.3	17.42
Weight	**kg**	**lb.**
	21.8	48

ELECTRONICS FRAME

Dimensions	cm	in.
Height 6RU	26.0	10.25
Width	43.2	19.0
Depth	63.0	24.8
Weight	**kg**	**lb.**
	36.3	80

POWER REQUIREMENTS
Frame Consumption: 400 W
Voltage: 90-260 VAC, 50/60 Hz
Panel Consumption: 200 W
Voltage: Auto-ranging

ENVIRONMENTAL CHARACTERISTICS
Ambient Temperature at Frame: 0-40˚ C (32-104˚ F)
Full Specifications Met: 20-30˚ C (68-86˚ F)
Relative Humidity: Up to 95% (noncondensing)

ORDERING INFORMATION

MODEL 1200
Serial Component Digital Production Switcher.

For ordering information, see ordering guide 2WW-2401-6.

MODEL 110 HD

HIGH DEFINITION PRODUCTION SWITCHER

FEATURES

- Internal frame stores for video and key provide instant recall of stored images
- 8 primary inputs and 2 dedicated key inputs plus downstream keyer fill
- Affordable solution for film transfer and small-scale production
- Superb quality in an economical package
- User selectable 720p or 1080i HDTV formats at either 59.94 or 60 Hz

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

110 HD

MODEL 110 HD HIGH DEFINITION PRODUCTION SWITCHER

The Grass Valley 110 HD Production Switcher is designed to meet the needs of small-scale digital production in high definition. Following the Grass Valley small switcher family tradition, the 110 HD switcher offers superb quality in an economical package. This switcher is ideal for film transfer, long-form editing, small mobiles, graphics and production suites.

The Model 110 HD provides high performance and unparalleled production power for its size. Built on production proven Grass Valley system architecture, this switcher's 3-bus multi-level mix/effects system gives you unmatched stability and picture quality.

SPECIFICATIONS

INPUTS
Serial Digital Video:
Number: 8 Primary, 2 External Key, 1 External DSK Fill
Connectors: 75 Ω BNC (SMPTE 292M)
Nominal Amplitude: 800 mV pp terminated
Return Loss: > 15 dB, 5 MHz to 1.5 GHz

Analog Reference:
Standard: 1080i Tri Level Sync (SMPTE 240M) 720p Tri Level Sync (SMPTE 296M)
Connector: 75 Ω BNC, looping.
Return Loss: > than 30 dB, 0 to 10 MHz
Nominal Amplitude: ± 300 mV pp
Line Rate: 1080i: 33.7 KHz, 720p: 45 KHz

OUTPUTS
Serial Digital Video:
Number: 2 Program, 1 Preview, 1 Clean Feed, 2 Framestore, 2 Auxiliary
Connectors: 75 Ω BNC, self terminating (SMPTE 292M)
Amplitude: 800 mV PP (SMPTE 292M)
Return Loss: > 15 dB, 5 MHz to 1.5 GHz

VIDEO STANDARDS
1080i 59.94 or 60 Hz (SMPTE 274M)
720p 59.94 or 60 Hz (SMPTE 296M)

CONTROL PANEL

Dimensions	cm	in.
Height	13.3	5.2
Width	43.2	17.0
Depth	34.9	13.75
Weight	**kg**	**lb.**
	5.4	12

ELECTRONICS FRAME

Dimensions	cm	in.
Height	13.3	5.2
Width	48.3	19.0
Depth	57.7	22.75
Weight	**kg**	**lb.**
	16	36

SYSTEM TIMING
Auto Timing Range: –22 µs to +7.5 µs from 0 Analog Reference
Switcher Output Delay: +1.5 µs minimum

SPECIFICATIONS CONTINUED

Pgm, Pvw, Clean Feed Output:
+9 µs from 0 Analog Reference (7.5 µs autotime + 1.5µs switcher delay)

Framestore Output:
Frozen: 0 Analog Reference
Moving (Grab): Untimed 0.4 µs after Framestore input
Aux Output: Untimed 0.01 µs after Aux input

CABLES AND CONNECTORS
Control Panel Cable:
(Custom Cable Connects Control Panel to Electronics Frame)
Connectors: D-15 (male connector on Frame end of cable, female connector on Panel end of cable)
Length: Standard: 30 meters (98 Ft.), Maximum: 100 meters (328 Ft.)

Serial Editor Interface Cable:
Connector: D-9, (Frame has a female connector, for attachment to a male connector on the Frame end of the editor cable)

HD Video Cables:
Connector: 75 Ω BNC.
Cable Type: Belden 1694A or equivalent
Maximum Length: 75 meters

POWER REQUIREMENTS
180 W maximum

Voltage: 90 to 240 VAC autorange, 50 to 60 Hz power factor corrected

ENVIRONMENTAL CHARACTERISTICS
Temperature Range:
Specification: 20 to 30˚ C (68 to 86˚ F)
Operational: 0 to 40˚ C (32 to 104˚ F)
Relative Humidity: Up to 90% (non-condensing)

ORDERING INFORMATION

110-HD
3RU Frame (with power supply and internal fans), Control Panel, 30 meter Cable.

110-HD-CKM
Chroma Key Module.

110-HD-ENET
Ethernet Framestore Loader.

GVEOUS™ DIGITAL VIDEO EFFECTS SYSTEM

FEATURES

- Twin-channel component or composite DVE
- Economical entry-Level DVE solution
- Built-in color corrector complementing any Grass Valley switcher in post-production applications
- Powerful 10-bit transform engines
- SuperShadow™ full-bandwidth drop shadow with independent controls
- SurfaceFX™ combines powerful texture and 3D light sourcing
- SuperMatte color generator for creating two color washes and patterns
- Four independent input frame buffers per DVE channel pair
- UltraWarp™ advanced warp capabilities
- Background framestore feeds live or still images to the internal combiner as a background
- Backed by the best service organization in the industry

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

GVeous Digital Video Effects System

GVeous is a 10-bit digital video effects system that is switchable between the 525 and 625 line standards. Available in field or frame-based versions, it offers you an advanced feature set for real-time effects using a unique Twin-channel processing system. With built-in color correctors and true 3D effects, GVeous is a cost-effective solution for extending the capabilities of your Grass Valley Zodiak™ production switcher or Kalypso™ video production center or other GV analog or digital switchers.

TWIN-CHANNEL POWER

GVeous introduces a new way of thinking about channels. In traditional systems, a two channel effect involves only two video images. Channels in GVeous are not limited to video, but can process video, key and/or drop shadow. This flexibility comes from the unique twin-channel processing that gives you the power of two DVEs in a single DVE board. You can also add a second twin channel board to get the power of four DVEs in one system. Three modes give you the flexibility you need to create exciting effects.

Video/Video. The DVE board independently processes two video sources. All transform, warp, and lighting effects are adjustable separately on each video channel. The DVE processor internally generates the key signals associated with these signals.

Video/Key. The DVE board independently processes one video and one key source. All transforms are available to the key signal independently from the video. The key signal also has clip, gain, and phase controls.

Video & Key/Shadow. In this mode, the DVE board derives a full bandwidth drop shadow from the key input. It processes the video and key (which are tied together) in one path, with independent control of the shadow in the other path.

reTouch™ COLOR CORRECTOR

The Color Corrector option gives you independent color correction control for each of the three keyers and the four background buses. You have all the flexibility and features you need to match sources or to solarize, posterize and invert each color component with precise control.

SuperShadow DROP SHADOW EFFECTS

With independent control of all transforms and warps you have amazing flexibility with drop shadow effects. You can ripple them, warp them and italicize them. All independent of the main video.

GVEOUS™ DIGITAL VIDEO EFFECTS SYSTEM

UltraWarp™ 3D EFFECTS

Create exciting 3D graphic effects to wrap video on Cylinders, Rings and Cubes. You also get the Lens feature which will magnify and highlight any area of the picture you want. Of course, you also get those effects we've all come to rely on such as page turns, slabs and warps.

SurfaceFX™ LIGHT SOURCE AND TEXTURE GENERATOR

Give your effects an exciting new look. Each GVeous channel can have two color light sources which can be positioned anywhere in 3D space with either a Bar, Flood or Spotlight shape. Each light source can independently produce both a high-light and a shadow, which will interact with page turns and ripples for an extremely realistic effect. For the final touch, you have surface textures - built from either live video, or framestore. The texture signal will modulate the surface of the image, creating highlights and shadows from the projected light source.

TARGET FRAMESTORE FOR TIME-BASED MOTION EFFECTS

Trails, Sparkles and Motion Blur are just some of the effects that are added with Target Framestore.

DEFOCUS FOR SOFT EFFECTS

By adding defocus capability to GVeous, you can get those wide band luminance and chrominance blurs that are so desired today.

TIMEFRAME EFFECTS EDITOR AND MOTION CONTROL

Loaded with features, the Time Frame Editor makes it easy to build timelines and for effects editing. You also get complete motion path control for realistic movement through transitions and effects.

DOUBLE YOUR POWER WITH Brutus™

Brutus integrates the control of two complete GVeous DVEs into a single compact control panel using an innovative combiner chassis. Each of Brutus' twin channels is capable of running in either dual video or video plus key plus full bandwidth dropshadow configurations for up to eight fully independent transform engines. Any GVeous system can easily upgrade to Brutus as your needs grows by simply adding another GVeous chassis and the Brutus combiner chassis.

TIGHT INTEGRATION WITH YOUR FACILITY

It's easy to integrate GVeous into your facility. GVeous communicates using Grass Valley's CPL protocol with the Kalypso™ video production center, the Zodiak™ production switcher or the Model 2200, 3000 or 4000 production switchers. This integrates the effects timeline into the switcher for precise effect recall, and allows the switcher aux bus to be controlled by GVeous. Peripheral Bus II protocol allows older Grass Valley Model 200 series production switchers to control GVeous' effects memory.

SPECIFICATIONS

VIDEO INPUTS

Composite Analog Formats: NTSC and PAL, switchable, 75 Ω loopthrough, non-terminating

Component Analog Formats: Beta, Beta SP, NHK Beta (no setup), MII, SMPTE, RGB with setup, RGB without setup

Component Characteristics: 75 Ω internally terminated, sync required on Y or G for dual 8-bit, sync on Y, G, or external sync for 10-bit video/key input

Component Input Autotiming: –1/+2 lines or 0/+3 lines (switchable)

Composite Input Autotiming: -2/+1 lines or –1/+2 lines (switchable)

VIDEO OUTPUTS

Analog Key and Sync Output: Output timing range is in 2.5 ns steps

Auxiliary Output Module: Provides one serial digital video plus key (10-bits)
1 or 2 modules (requires one input module slot per output module)

COMPOSITE OUTPUT MODULE

- 2 analog composite outputs
- 2 serial digital program outputs (10-bits)
- 2 serial digital key outputs (10-bits)

COMPONENT OUTPUT MODULE

- 2 serial digital program outputs (10-bits)
- 2 serial digital key outputs (10-bits)
- 1 component analog video output (10-bits) (Beta, Beta SP, NHK Beta, MII, SMPTE, RGB)

SYSTEM CHARACTERISTICS

Line Rates Supported: 525 lines/60 Hz or 625 lines/50 Hz

Aspect Ratios Supported: Anamorph™ user selectable (includes 4:3 and 16:9)

Internal Processing: Frame based, 10-bit processing (5100); field based, 10-bit (5000)

Number of Channels: 1 or 2 twin channels, each pair can be dual video or video plus key with full bandwidth SuperShadow™

COMMUNICATIONS

Serial Ports: Three SMPTE, LINC™, GVG peripheral bus, GVG CPL, and Sony protocol

GPI: 12 inputs, 12 outputs, fully programmable, includes intelligent on-air tally and front/back on-edge switch

ELECTRONICS FRAME

Dimensions	cm	in.
Height 5 RU	22.2	8.75
Width	48.3	19
Depth	66.1	26
Weight	**kg**	**lbs.**
	36.3	80

CONTROL PANEL

Dimensions	cm	in.
Length	48.3	19
Width	27.8	10.93
Depth	14.2	5.57
Weight	**kg**	**lbs.**
	4.5	10

CONTROL PANEL POWER

Power: 35 W

Voltage: 90-250 VAC, auto sensing

Frequency: 50/60 Hz, auto sensing

ELECTRONICS FRAME POWER

Power: 750 W

Voltage: 90-250 VAC, auto sensing

Frequency: 50/60 Hz, auto sensing

ORDERING INFORMATION

GVEOUS DIGITAL VIDEO EFFECTS SYSTEM

For ordering information, see order guide 2WW-9405.

GVEOUS™ HD HIGH DEFINITION DIGITAL VIDEO EFFECTS SYSTEM

KEY FEATURES

- Frame-based high definition processing
- Compact, 4RU chassis with RS422 control and GPI/O
- Available as dual twin HD (4 video or 2 video plus key channels) or single twin HD (2 video or one video plus key channel).
- Shares common feature set with Gveous standard definition models, including SurfaceFX™, UltraWarp™, and OrbitalFX™
- Target Framestore, five channel color correctors, and aux channel outputs are included
- Hard drive storage for effects and textures
- Dual twin channel 10 bit Video + Video or Video + Key or Video + Key + Shadow.
- Two channel wide range defocus. Defocus each channel and each component individually.
- Four channel 3D lighting with bump-mapped texture.
- Four-channel Z depth combiner or priority based layering.
- Planar 3D position and rotate with perspective and Z.
- In Video + Key mode, the key has independent warp address generator.
- In Video + Key + Shadow mode, shadow has independent warp address generator for cast shadows.
- Pattern generator and Supermatte wipe generator
- Soft edge border and crop on each input.
- Defocus shadow independent of key. Shadow can be fed from key or a separate input

GVeous™ HD High Definition Digital Video Effects System

GVeous HD sets the performance benchmark for high definition digital video effects. This real-time, high definition effects system shares the features of the GVeous system for standard definition video and uses frame-based processing for sharp visual effects at 1920x1080 resolution. Using the same user interface and control panel as GVeous for standard definition, it's easy to upgrade to HD without operator retraining.

Twin-Channel Power

GVeous introduces a new way of thinking about channels. In traditional systems, a two channel effect involves only two video images. Channels in GVeous are not limited to video, but can process video, key or drop shadow. This flexibility comes from the unique twin-channel processing that gives you the power of two DVEs in a single DVE board. You can also add a second twin channel board to get the power of four DVEs in one system.

Each GVeous twin channel processor board has a main channel that takes in full bandwidth video. The second channel can process one of three signals: a video signal, a key signal or a drop shadow. These three modes give you the flexibility you need to create exciting effects.

Video/Video. The DVE board independently processes two video sources. All transform, warp, and lighting effects are adjustable separately on each video channel. The DVE processor internally generates the key signals associated with these signals.

Video/Key. The DVE board independently processes one video and one key source. All transforms are available to the key signal independently from the video. The key signal also has clip, gain, and phase controls.

Video & Key/Shadow. In this mode, the DVE board derives a full bandwidth drop shadow from the key input. It processes the video and key (which are tied together) in one path, with independent control of the shadow in the other path.

Each transform engine has its own timeline, and there is a separate timeline for global controls. This feature lets you build different effects on different channels, then offset their start times, and the global timeline, independently.

reTouch™ Color Corrector

The Color Corrector option gives you independent color correction control for each of the three keyers and the four background buses. You can color correct in YUV color space, or translate and upsample the video to 4:4:4 RGB for control of White Balance, Black Balance, Gamma, and Knee on each of the R, G, and B components. The video is then downsampled back to 4:2:2 before being sent to the mixer for layering . You have all the flexibility and features you need to match sources or to solarize, posterize and invert each color component with precise control.

GVEOUS™ HD HIGH DEFINITION DIGITAL VIDEO EFFECTS SYSTEM

SuperShadow™ Drop Shadow Effects

With independent control of all transforms and warps you have amazing flexibility with drop shadow effects. You can ripple them, warp them and italicize them. All independent of the main video.

UltraWarp™ 3D Effects

Create exciting 3D graphic effects to wrap video on Cylinders, Rings and Cubes. You also get the Lens feature which will magnify and highlight any area of the picture you want. Of course, you also get those effects we've all come to rely on such as page turns, slabs and warps

SurfaceFX™ Light Source and Texture Generator

Give your effects an exciting new look. Each GVeous channel can have two color light sources which can be positioned anywhere in 3D space with either a Bar, Flood or Spotlight shape. Each light source can independently produce both a high-light and a shadow, which will interact with page turns and ripples for an extremely realistic effect.

For the final touch, you have surface textures – built from either live video, or framestore. The texture signal will modulate the surface of the image, creating highlights and shadows from the projected light source. You can then use these textures with some warp patterns to produce realistic highlights and shadows in your effects.

Target Framestore for Time-Based Motion Effects

Trails, Sparkles and Motion Blur are just some of the effects that are added with Target Framestore. Since it works with the Z-axis depth information, you can move live images in front or behind the stored images automatically.

Defocus for Soft Effects

By adding defocus capability to GVeous, you can get those wide band luminance and chrominance blurs that are so desired today. With dual channel control, you can use it on one or two video signals, or on one video and one key signal. You even have independent control of horizontal and vertical settings.

TimeFrame Effects Editor and Motion Control

Loaded with features, the Time Frame Editor makes it easy to build timelines and for effects editing. You also get complete motion path control for realistic movement through transitions and effects. Battery backed up memory gives you 100 effects on-line, using a pool of more than 2000 keyframes with up to 300 keyframes per effect. Use the included high-density drive to store and recall effects and engineering setups.

SPECIFICATIONS

SYSTEM I/O

Video Inputs:
- 12 High Definition, SMPTE 292M 10 bit Serial Inputs at 1.5Gb/s for Video or Key

Video Outputs:
- 6 High Definition, SMPTE 292M 10 bit Serial Outputs at 1.5Gb/s. Outputs are selectable as combined video, combined key, channel video or channel key

Reference:
- Looping, tri-level HD sync or black burst

SYSTEM CHARACTERISTICS

Scan Format:
- 1920 x 1080

Frame Rates:
- 50i, 59.94i, and 60i

Number of Channels:
- Single or Dual Twin Channels, each Twin Channel can be Dual Video or Video Plus Key with Full Bandwidth SuperShadow™.

COMMUNICATIONS

Serial:
- Three RS422 ports which support, SMPTE, GVG Peripheral Bus and switcher aux. bus, and Sony protocols. 1 port configurable as RS232.

GPI:
- 12 inputs, 12 outputs, fully programmable. Includes intelligent on-air tally and front/back on-edge switch

PHYSICAL

GVeous Electronics Frame:

Dimensions	cm	in.
Height 4 RU	17.8	8.75
Width	48.3	19.0
Depth	40.6	16.0
Weight	**kg**	**lbs.**
	36.3 kg	80 lbs.

GVeous Control Panel:

Dimensions	cm	in.
Length	48.3	19.0
Width	27.9	10.9
Depth	14.2	5.6
Weight	**kg**	**lbs.**
	4.5 kg	10 lbs.

GVeous Control Panel Power:
- Power: 5W
- Voltage: 90-250VAC, auto sensing
- Frequency: 50/60 Hz, auto sensing

GVeous HD Electronics Frame Power:
- Power: 400W
- Voltage: 90-250VAC, auto sensing
- Frequency: 50/60 Hz, auto sensing

ORDERING INFORMATION

GVEOUS DIGITAL VIDEO EFFECTS SYSTEM
For ordering information, see order guide 2WW-9405.

MAKING MORE NEWS MORE EASILY

Digicasting solutions deliver faster, cheaper, better newsroom workflows

So you work in a hard news production environment. Get out the adrenaline and please pass the Maalox.

Few broadcast environments match the pressure of a newsroom. Because all you have to do is hit all your deadlines. And quickly deliver great content to more digital pipelines than ever before: cable, satellite, and terrestrial outlets, not to mention broadband connections.

Which means that on top of your day job, you now have to find a news production solution that is faster, cheaper, and better than the tape-based systems you have in place today. A news system, incidentally, that gives your staff total access to all the material they want, supports great creative freedom, and lets them quickly re-purpose that material.

So who says you can't have it all?

The Grass Valley Group offers a solution that addresses the entire news production process. One that works as fast as you do. One that can get stories wherever they need to go. One that can increase the production value of your news content. And one that costs no more than tape-based solutions while eliminating the maintenance headache.

Offering end-to-end support of DV and MPEG-based news production, the Grass Valley Group digital news solution is built around the Grass Valley Digital News Production Workgroup, the Profile XP Media Platform, the Grass Valley Media Area Network (MAN) shared-storage system, and the industry's most advanced archive technology, the Profile Network Archive.

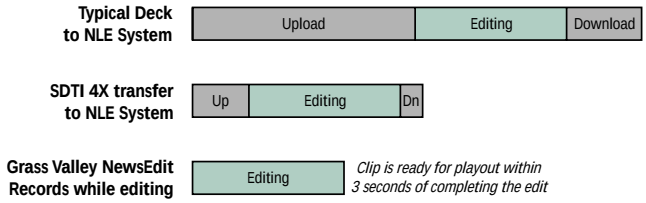
Compliant with the Grass Valley Group's open ContentShare software platform for information access and exchange, this solution also offers the most far-reaching newsroom computing integration, including that with Pathfire's news-on-demand applications as well as AP/ENPS and iNews systems. And its ability to leverage the Grass Valley Group's WebAble technology suite and Aqua Internet encoder means that putting content online is as easy as putting it on air.

Suddenly, your nearly impossible job just got a lot more doable.

Faster, cheaper, better

Newsroom digicasters want open, standards-based technologies that let them mix and match products—PC-based newsgathering tools, newsroom computing systems, shared-storage solutions, asset-management software, and Internet encoders—to be as efficient and flexible as possible.

The vanguard of the Grass Valley Group's news solution is our Digital News Production Workgroup, which brings digital speed, simplicity, and high-quality to the entire hard-news production process. Leaders in the world's top television markets, including those in New York, Los Angeles, Boston, and San Francisco in the United States, as well as in Europe and the Pacific are using these news products and are starting to make a dent in the estimated 90 percent of newsrooms yet to make the transition to digital.



The Grass Valley NewsEdit™ system records while editing — eliminating time-consuming pre-digititization of footage.

From the capture, rapid assembly, and editing of material to on-air playback, our products get breaking news to air faster at less cost than traditional tape-based production gear. Comprised of the FeedClip™ interactive feed capture system, NewsEdit™ nonlinear editing system, and NewsQ™ manual playback application, which features native MPEG and DV support at up to 50 mb/s, plus real-time effects.

The Digital News Production Workgroup is built for speed and workflow efficiency. For example, while a Profile system captures a scheduled feed, a FeedClip system can capture breaking news, letting editors extract clips while the recording takes place. The NewsEdit system has access to these feeds and clips, making it easy to combine them with material brought in from field crews. Accelerating the process is the unique "Edit to Timeline" feature of NewsEdit, which makes it the fastest non-linear news editor on the market when editing field footage.

Stretching newsroom dollars further, NewsEdit integrates with iNews, AP/ENPS, and Pathfire systems to greatly increase newsroom efficiency. Editors can assemble a low-resolution version of a story using the iNews MediaBrowse system, for example, then pass an edit decision list to NewsEdit to conform the story for high-resolution playout. NewsEdit is also integrated with the Profile XP Media Platform for resilient and automated playback of finished sequences as well as the NewsQ system for strictly manual applications. These digital playback systems eliminate the confusion and errors of tape-based playback—and make a control room just a wee bit calmer place to be.

The Grass Valley Media Area Network (MAN) real-time, shared-storage system provides simultaneous media access to the digital news production workgroup. Leveraging the strength of the Emmy® award-winning Profile XP Media Platform, the Grass Valley MAN system overcomes one of the biggest shortfalls of today's shared-topology storage systems: the inability for third-party applications to work together easily.

The Grass Valley MAN is an open, standards-based system that fits the way a newsroom works. It is compatible with all mission-critical broadcast applications; in fact, it supports Windows 32 file system access, so any Windows NT-based application can use its shared files. And by leveraging the multi-format capabilities of the Profile XP Media Platform, it supports the broadest array of materials possible, including MPEG 2 4:2:2, D10, DVCPRO50, HD, Windows Media, and Real Networks formats.

QUICK REFERENCE GUIDE TO GRASS VALLEY GROUP DIGITAL NEWS PRODUCTION SOLUTIONS

42 **NewsEdit™** , first cost-effective, truly open and standards-based solution for digital news production

45 **FeedClip™,** powerful PC-based system for interactive feed capture

48 **NewsQ™,** Affordable, PC-based playback server.

9 **Grass Valley Media Area Network,** a real-time, no-compromises shared-storage option

10 **PVS1100 Profile XP Media Platform,** a bullet-proof server designed for the rigors of hard news and sports production

11 **Profile Network Archive,** the most advanced storage archive technology

51 **Aqua Internet encoder,** a turnkey system architected to provide the highest streaming throughput per rack-unit of space compared to any product in its class

52 **WebAble,** a tool suite for streamlined repurposing of Profile-based content

54 **ContentShare,** an open, standards-based software platform for media asset management

Specialized for news: new server for news, sports production

With more broadcast content stored on it than any other, the Grass Valley Group has expanded the Profile line to meet the rigorous demands of news and sports production. The new PVS1100 Profile XP Media Platform system supports DVCPRO, DVCPRO50, and I-Frame MPEG formats, including the D10 standard compatible with Sony IMX tape decks. It also features a bi-directional codec for on-the-fly channel configuration changes, unparalleled smooth slow-motion technology, and built-in SDTI support for accepting compressed VTR video at up to four times real-time speed.

To ensure high availability, the PVS1100 supports the Grass Valley Group's NetCentral™ software for Simple Network Management Protocol (SNMP)-based remote monitoring as well as the Profile InSync™ automatic mirroring software.

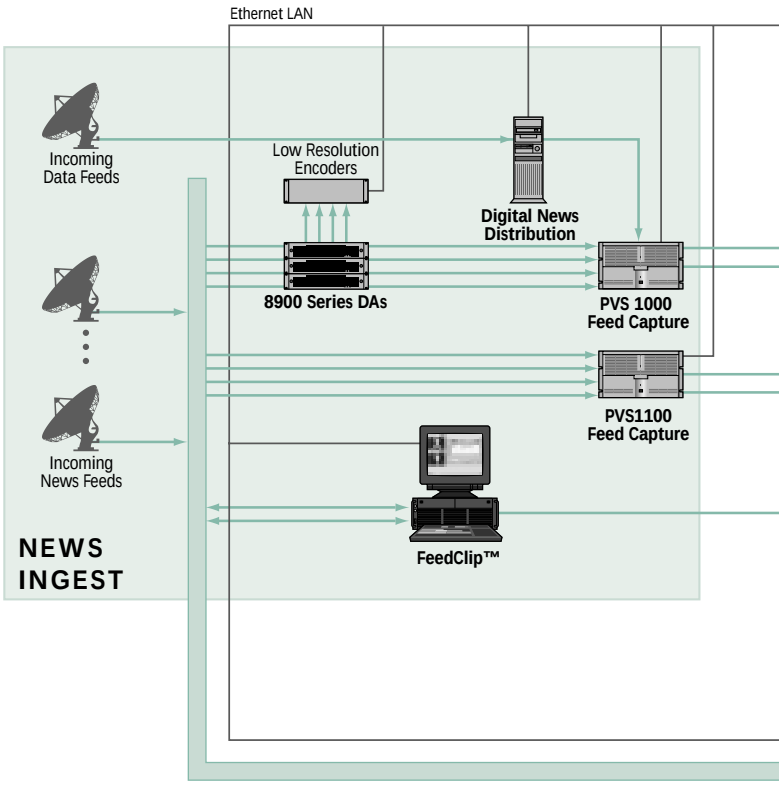
Quickly sifting through mountains of digital assets

In deadline driven newsrooms, where inching your way through hundreds of archived tapes just isn't an option, the Digital News Production Workgroup provides highly optimized sifting and sorting of your assets. For fast retrieval of archival footage and other digital assets, the Grass Valley MAN—like all components of the Grass Valley Group news solution—is integrated with the Profile Network Archive (PNA). Using high-speed Fibre Channel technology, the PNA enables multiple Profile systems to access one or more libraries. The PNA also scales easily and affordably. And a recently announced partial-file restore option will enable the PNA to offer even faster asset retrieval.

Then there's the issue of applications compliance—or the lack thereof.

To prevent newsrooms from having to choose between tools that work in their environment and tools they want, the entire Grass Valley Group news offering—including the Digital News Production Workgroup—is compliant with the ContentShare software platform, an open, industry-standard framework for information access and exchange based on the eXtensible Markup Language (XML) that any application can use. Instead of costly custom interfaces, the ContentShare platform enables organizations to link third-party applications in a standard, cost-efficient manner— and to maintain those linkages even as the applications change.

For example, the Pathfire NewsTracker news-on-demand system saves newsrooms from rolling tape constantly to record news feeds. Its Java-based interface lets news producers review categorized regional, national, and breaking news stories, then select broadcast-quality video clips and associated scripts right from their desktops. Both the NBC News Channel and ABC News One have selected News Tracker for on-demand news delivery. Using ContentShare, Pathfire is enabling users to move materials from a NewsTracker server into a Profile XP Media Platform system as well as the Digital News Production Workgroup. This linkage will simplify newsroom operations, allow multiple users to use the same media and, most importantly, improve time to air.



Similarly, ContentShare is helping BitCentral in its support of CBS NEWSPATH NOW, a system for targeted delivery of news content to network affiliates. Using ContentShare, BitCentral can ingest audio, video, and meta data from third-party systems and distribute those materials using its MediaPipe product to 180 CBS affiliates.

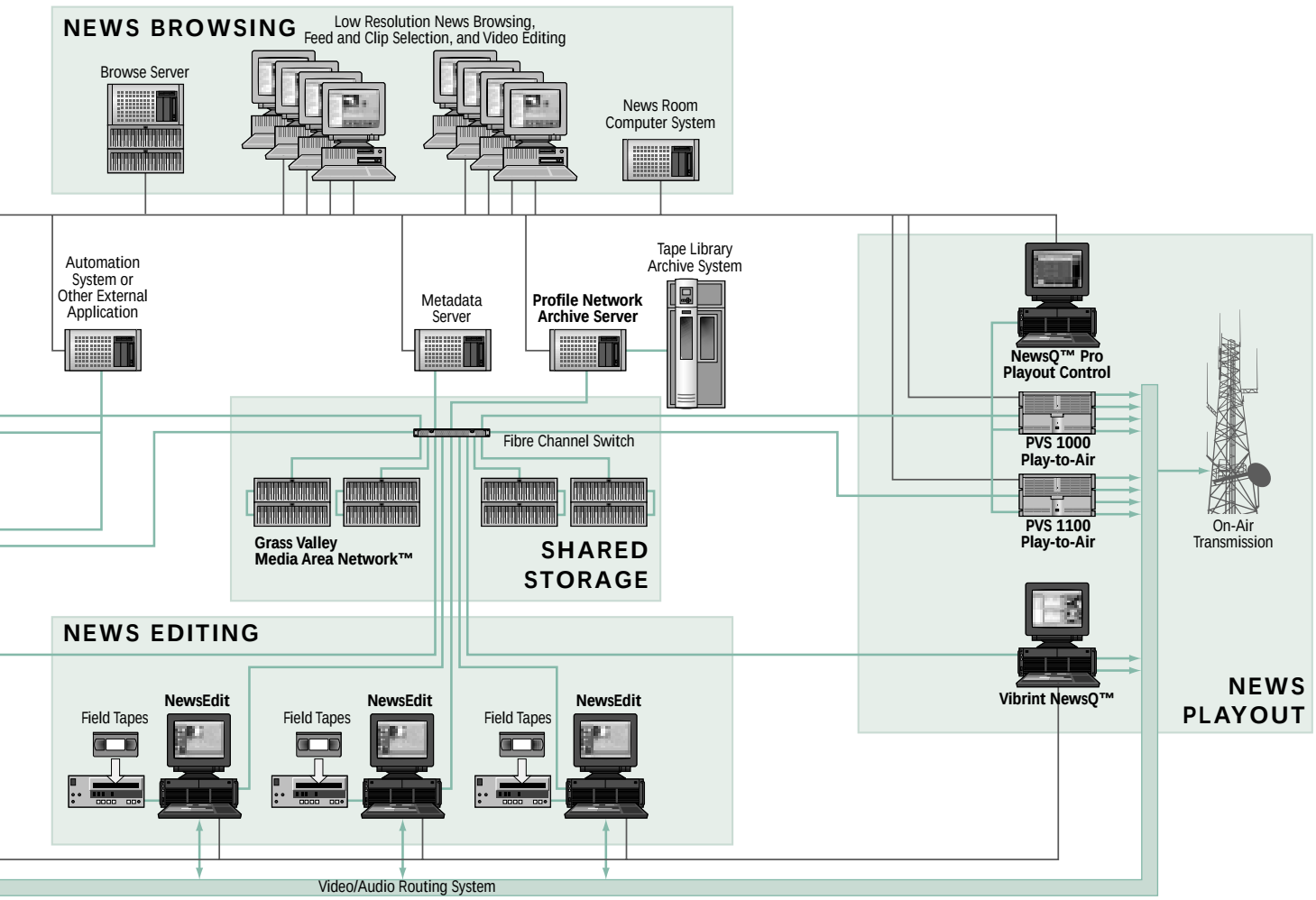
Putting news online quickly, cheaply

Here's the paradox of the Internet. In many broadcast operations—and pure-play Internet operations—people are trying to repurpose material very quickly for the Web. And in most cases that involves a lot of people running around looking for tape or looking for the person looking for the tape.

The Grass Valley Group's WebAble suite offers a drag-and-drop method for creating streaming media that fits neatly within newsroom workflows. Using WebAble, transferring a video clip to a Web server is as easy as copying a spreadsheet to a floppy disk; conversion to standard streaming formats such as Microsoft's Windows Media and RealNetworks' Real Video is automatic.

To put content online, WebAble users need only identify the content or clip they need, drag it to a Microsoft Windows NT-based Web server, and initiate the streaming conversion process as part of that transfer. The resulting digital file is then ready for insertion into a standard Web publishing tool. They can also leverage the signal pre-processing capabilities of the Grass Valley Group's Aqua Internet encoder to turbo-charge the WebAble suite with the highest possible quality video.

THE GRASS VALLEY™ DIGITAL NEWS PRODUCTION WORKFLOW



GRASS VALLEY™ NEWSEDIT™

BUILT FOR SPEED AND WORKFLOW EFFICIENCY. TUNED FOR NEWS.

Grass Valley Group NewsEdit is the only truly open PC-based editing system designed from the ground up to replace the record deck in cuts-only editing bays. NewsEdit offers all of the advantages of nonlinear technology while preserving the speed and familiar conventions of tape-to-tape editing making it ideal for hard news production. In fact, by eliminating predigitizing and allowing editors to see edits as they are made, NewsEdit is easily twice as fast as other nonlinear editing systems.

The Grass Valley Group's news solution is built around the Digital News Production Workgroup, Profile XP Media Platform, Media Area Network(TM) real-time shared storage system, and the industry's most advanced archive technology, the Profile Network Archive. This solution offers the most far-reaching NRCS integration. Its ability to leverage the Grass Valley Group's Internet solutions means that putting content online is as easy as putting it on the air.

NEW! NEWSEDIT FEATURES

- Format independence— MPEG2 up to 50 Mb/s, DV25, and DV50 support (optional interface dependant)
- Real-time effects, including wipes and dissolves with soft-edge control
- Access to Grass Valley Media Area Network real-time, shared-storage
- Workflow efficiency through compatibility with low-res browsers and editors via OMF EDL file import
- Robust audio support:
  - Drag and drop audio between tracks
  - More audio channels—up to 4 in/8 timeline/4 out (optional interface dependent)
  - Audio input metering and level control
  - Improved audio scrubbing
- Improved UI for more efficient editing

STANDARD FEATURES

- Replaces record deck in two-machine, cuts-only edit bay
- Simple to use, even for non-technical personnel
- Seamless integration with leading newsroom computer systems (NRCS) such as AP/ENPS and with digital delivery systems such as Pathfire
- Matches speed and functionality of tape-to-tape editing
  - Record from tape to timeline without pre-digitizing
  - View edits as they are made
  - Insert edits, voice-overs, L-shaped cuts, three-point edits, audio/video punch-ins
- Offers flexibility of nonlinear editing
  - Re-purpose material quickly
  - Real-time transition effects
  - Adjust audio levels dynamically
- Integrates via high-speed networking with other NewsEdit editors, Grass Valley Group FeedClip integrated feed capture system, Grass Valley Group NewsQ manual playback system, and Profile XP Media Platform systems for ingest or playout

The Grass Valley Group offers a solution that addresses the entire news production process. One that works as fast as you do. One that can get stories on air quickly and efficiently. One that can increase the production value of your news content. And one that is more economical than tape-based solutions.

The Grass Valley Group Digital News Production Workgroup offers ingest, edit and play to air products using off-the-shelf computer technologies. Built for speed and efficiency, it includes the NewsEdit™ editor, the first truly open, PC-based, non-linear editor for news that offers the speed of deck-to-deck editing and the freedom of nonlinear technology. By eliminating predigitizing and allowing editors to see edits as they are made, the NewsEdit editor is twice as fast as other nonlinear editing systems. And the NewsEdit editor eliminates many of the costs associated with tape-based systems.

NEWS EDIT: OPEN, NONLINEAR PERFORMANCE

Already twice as fast as other digital editing systems, the Grass Valley Group NewsEdit editor is now twice as open—with DV and MPEG support and data rates up to 50 Mb/s. Designed expressly for hard news production and the demand for new content, the latest version of the NewsEdit editor enables even faster package development through its support of real-time dissolves and wipes with soft-edge control.

The NewsEdit editor delivers all of the benefits of nonlinear technology, including instant random access, multiple levels of undo, real-time transition effects, and the ability to quickly make new versions of stories. It eliminates the time-consuming pre-digitization process, letting editors record directly from tape timeline while performing insert edits, voice-overs, L-shaped cuts, and three-point edits quickly. Unlike most other nonlinear editing systems, the NewsEdit editor enables editors to view edits as they are made—just like a machine-to-machine edit bay. An edit never has to be replayed just to be sure it's right.

Soon, the NewsEdit editor will also enjoy fast and cost-efficient media access through the Grass Valley™ Media Area Network™ (MAN) real-time, shared-storage system. Leveraging the strength of the Profile XP Media Platform, the Grass Valley MAN system offers users simultaneous access to high-quality video and their favorite tools for manipulating that video.

GRASS VALLEY™ NEWSEDIT™

GRASS VALLEY GROUP LINE MEETS NEED FOR SPEED, EFFICIENCY

The Grass Valley Group Digital News Production Workgroup is built for speed and workflow efficiency. By converging video, text, and real-time effects on a single workstation, the NewsEdit editor supports the need of news professionals to multitask at their usual breakneck pace. Taking efficiency a notch higher, the latest version of NewsEdit offers compatibility with low-res browsers and editors through OMF EDL file import. Journalists can now assemble a low-resolution version of a story using the iNews Media Browse system, for example, and then pass an edit decision list to NewsEdit to conform the story in high-resolution for further editing.

The NewsEdit editor can also access feeds and clips captured by the Grass Valley Group FeedClip™ system for interactive feed capture, making it easy to combine these materials with those bought in from field crews. Accelerating the process is the unique Edit to Timeline feature of the News Edit editor, which makes it the fastest nonlinear news editor on the market for editing field footage.

The NewsEdit editor is also integrated with the Profile® XP Media Platform for resilient and automated playback of finished sequences as well as with the Grass Valley Group NewsQ™ player. These digital playback systems eliminate the confusion and errors of tape-based playback.

Stretching newsroom dollars and resource even further, the NewsEdit editor integrates with newsroom computer systems (NRCSs) such as AP/ENPS and Avid's iNews, and with news delivery services such as that of Pathfire to greatly increase newsroom efficiency. With this level of integration to NRCSs and material, producers and video editors can access assets, view rundowns, read scripts, and edit video all on a single PC, making it easier, faster, and more efficient to bring breaking news to air.

SOUNDS GOOD

Greatly enhancing the NewsEdit editor's audio features, is support for up to 4 in/8 mixed, and 4 out audio channels; 2 I/O and 4 I/O options are available. In addition, the NewsEdit editor now features audio input metering and level control for accurate audio editing and playout. Audio scrubbing and routing from source to timeline have been enhanced. And new drag-and-drop audio features will enable editors to quickly and easily move audio clips between tracks.

STANDARDS-BASED PC CONFIGURATION

The standards-based design of the Grass Valley Group Digital News Production Workgroup lets stations of all sizes take advantage of price/performance gains offered by the latest processor, software, and networking technologies. As with other Grass Valley Group solutions, upgrading a member of the Grass Valley Group line is typically as simple as a software update or plug-in.

The Grass Valley Group NewsEdit editor is available in either a tower unit or a rackmount chassis configuration. The PC platform acts as a bridge between the legacy broadcast infrastructure and computer-based interfaces. Both the tower and rackmount system include an Intel Pentium PC motherboard and a system hard drive, as well as CD and floppy drives. Two storage bays can be configured with hard drives up to 181 GB each.

EDITING FEATURES

Record To Timeline	Edit directly from tape to timeline without pre-digitizing just like tape-to-tape.
View Edits in Progress	NewsEdit editors see their edits as they are made; they never have to play back an edit just to check it.
Audio/Video Punch-in	Toggle individual video and audio tracks on or off while recording. Perfect for performing L-cuts on the fly.
Trimmer Window	Trims clip In/Out points with frame accuracy. The clip trimmer can be brought up in either the media bin or the timeline views.
Overwrite and Splice Edit Modes	Overwrite edit mode performs just like an insert mode edit in tape-to-tape editing. Splice edit mode inserts a new clip between two existing clips allowing editors to insert a shot in a story without re-editing.
Real-Time Transition Effects	Real-time dissolves and wipes.
Fit-to-Fill	Insert video, including still frames, fill-frames, or variable-speed clips, into an existing hole in a story timeline.
Cut Point Edit Tool	Trims the cut point of two consecutive clips. For example, it allows the manipulation of the in point of one clip and out point of an adjacent clip simultaneously. The Cut Point Edit Tool is perfect for extending L-cuts and adding breathing room between two butted sound bites.
Knife Editing Tool	Splits a clip that exists in the timeline. Perfect for handling clips that contain multiple good shots or for removing undesired material.
Integration with NRCS	Editors can display iNews and ENPS text scripts and rundowns in NewsEdit window. The NewsEdit editor and NRCS application can run on the same PC. Compatibility with low-res browsers and editors has been added through OMF EDL file import.
Mark In/Mark Out	Marks in and out points for clips in timeline, trimmer window, or on tape source.
Go To Points	Help editors move quickly through a package by jumping to: Mark In/Out, Left/Right one Frame, Left/Right 10 Frames, Left/Right one Second, Previous/Next Cut Point.
Undo and Redo	32 levels of undo/redo.
Audio Control Features	Audio Crossfades (ideal for blending natural sound or music), audio Scrubbing, voice-over recording, and audio fade control which enables the manipulation of individual frames of audio to create special effects such as natural sound audio spikes.
Basic VTR functions	Play from start, play, pause, rewind, fast forward, and eject.

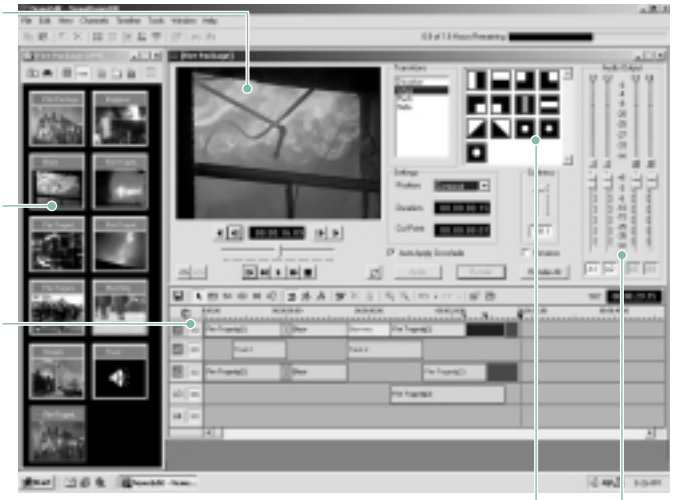
GRASS VALLEY™ NEWSEDIT™

THE NEWSEDIT USER INTERFACE

Video Window. Allows viewing of media being recorded or played back. When performing trim edits, two or more video windows in the user interface display the respective in and out points of consecutive clips. Because the NewsEdit editor can record and play back simultaneously, it can imitate a record deck's PB/EE capability of an insert edit. The NewsEdit editor is the only nonlinear editing application to retain this familiar convention relied upon by tape editors.

Media Bin. Used for organizing clips and storyboarding packages. Bins can be viewed in either thumbnail or text mode and clips can be quickly sorted and sifted by name, duration, description, and other familiar database categories.

Timeline. Allows an editor to view an entire story while editing. The timeline supports one track of video and up to eight tracks of audio. Clips and voice-overs can be recorded directly to the timeline or imported from the media bin. From within the timeline, clips can be trimmed with frame accuracy, split, moved, or reordered. Real-time effects preview, such as audio crossfades, dissolves, and wipes can be added quickly.



Real-Time Transition Preview. With Grass Valley Group NewsEdit's transition tool, editors have the option of real-time transition preview with dissolves, wipes (with edge softness), pushes, and slides. The transition tool is one of six main tools in the user interface that make NewsEdit easy to use and speeds the process of delivering hard news.

Four I/O Audio Metering and Control. With the ability to monitor and control up to four audio inputs and outputs as well up to eight tracks of audio on the timeline, NewsEdit provides users greater control of audio editing and playout. Each channel has an audio slider, pan adjustment, mute control, and soloing option. Audio adjustments can be made to an entire sequence, track, clip, or a single frame.

SPECIFICATIONS

THE NEWSEDIT EDITOR FEATURES THE FOLLOWING:
Codec for support of MPEG2 4:2:2 with scaleable data rates up to 50 Mb/s, DV25, and DV50 video (25 and 50 Mb/s models available)—the Codec is capable of encoding and decoding simultaneously

Video and audio I/O options for interfacing with current broadcast video/audio environments (analog and digital)

Optional integrated storage capable of holding up to two drives—storage expansion is virtually limitless with the use of external storage arrays.

High-speed network interface for links to multiple platforms

Easy to upgrade through simple software updates and plug-ins

STANDARD CONFIGURATION
Intel Pentium III, 256 MB RAM, 20 GB EIDE System Drive, CD-ROM Drive, 1.44 Mb Floppy Drive, PS/2 Keyboard and Mouse

5 Slot PCI Platform

Dual format compression engine

ATI Graphics Card

Ethernet 10/100 Network Interface on Motherboard

Windows 2000 Operating System

VIDEO
NTSC, 525/59.94 (240,248, or 256 active lines per field)

PAL, 625/50 (288 active lines per field)

Inputs: Composite, Y, R-Y, B-Y Component; S-VHS, CCIR 601 Serial Digital
Outputs: Composite, S-VHS, CCIR 601 Serial Digital

Compression: MPEG2, 4:2:2,user-selectable compression bit rates up to 50 Mb/s, DV25, and DV50 (model dependent)

AUDIO
48 KHz 16-Bit PCM, uncompressed

Inputs: 2 or 4 Channel, Balanced, Unbalanced AES/EBU, SDI embedded TDIFF

Outputs: 2 or 4 Channel, Balanced, Unbalanced, AES/EBU, SDI embedded, TDIFF

TIMECODE
Input RS-422 and RS-232 Protocols

PHYSICAL DIMENSIONS
Chassis: Standard EIA Rack Mount (Floor standing tower unit available)

Dimensions	cm	in
Height 4RU	17.8	7
Width	48.3	19.0
Depth	53.0	20.8

POWER REQUIREMENTS
Power: 400 Watts for rack mount system, 300 Watts for tower system

Voltage: Switch Selectable, 120VAC @ 6.2A or 240VAC @ 3.1A

Frequency: 47-63 Hz

OPTIONS
RAID3, RAID5, or JBOD (RAID0) (Ultra SCSI, Fibre Channel)

17" Monitor and Keyboard

18 GB, 36 GB, 72 GB, 181 GB Media Storage

Media Drive Expansion Rack

Fibre Channel or Gigabit Ethernet Network Interface Card

ORDERING INFORMATION

For information on ordering this product, please contact your Grass Valley Group sales representative

GRASS VALLEY™ FEEDCLIP™

BUILT FOR SPEED AND WORKFLOW EFFICIENCY.
TUNED FOR NEWS.

FeedClip, Grass Valley Group's powerful PC-based system for interactive feed capture, enables broadcasters to turn around live events faster than is possible in all tape environments. Its increased speed and efficiency offer a distinct competitive advantage for live news events including breaking news stories, press conferences and live sports.

NEW! FEEDCLIP FEATURES

- Format independence—MPEG2 up to 50 Mb/s, DV25, and DV50 support (optional interface dependant)
- More audio channels – up to 4 in/4 out (depending on optional interface)
- Audio input metering and level control
- Can combine with NewsEdit nonlinear editor on one workstation

STANDARD FEATURES

- Interactive clip selection for breaking news, sporting events, and scheduled feeds
- Linear or user-defined continuous loop recording
- Scheduling of individual or recurring events for on-time records
- Automarking of in/out points with single keystroke
- Retro Mark recording captures pre-defined amount of material prior to Mark In point
- Frame-accurate trimming of clips
- Optional handles setup for adjusting edit points or adding real-time transition effects in Grass Valley Group NewsEdit nonlinear editing system
- Simultaneous record and playback on one- or two-channel system
- Direct playout to air of individual clips or clip sequences
- Variable-speed playback
- Group export and simultaneous sending of clips to multiple NewsEdit systems or playback devices
- Easy to upgrade through simple software updates.
- Part of complete Grass Valley Group Digital News Production workgroup—integrates via high-speed networking with Grass Valley Group NewsEdit nonlinear editor, Grass Valley Group NewsQ™ manual playback system and Profile® XP Media Platform

The Grass Valley Group offers a solution that addresses the entire news production process. One that works as fast as you do. One that can get stories to air quickly and efficiently. One that can increase the production value of your news content. And one that is more economical than tape-based solutions.

The Grass Valley Group™ Digital News Production Workgroup offers ingest, edit and play to air products using off-the-shelf computer technologies. Built for speed and efficiency, it includes FeedClip™ interactive feed capture system.

THE FASTEST TURNAROUND OF LIVE NEWS AND SPORTING EVENTS

Using the FeedClip system for interactive feed capture, broadcasters can turn around live news and sporting events faster than ever—and do so using MPEG (up to 50 Mb/s) or DV (25 or 50 Mb/s) media (depending on model). The system is easy to use—even in pressure situations—cost-efficient, and simple to upgrade as technology evolves.

The FeedClip system makes it easy to package a breaking news event or sports highlights, especially when they happen late. Producers can monitor a live event or game as it records to disk and mark clips on the fly. The system's Retro Mark feature ensures that producers never miss a crucial action, goal, or play at the plate. Clips may be made available for editing on the NewsEdit™ nonlinear editor while the recording continues, so there is no need to wait until an event is over before editing begins. Alternatively producers can organize selected clips into a playlist that is instantly available for playback. The FeedClip system even offers the flexibility of playing clips at normal or variable speeds.

SCHEDULE EVENTS FOR ON-TIME RECORDING

With numerous feeds coming in each day, ensuring an on-time record can be difficult to manage. With the FeedClip system's scheduler, however, programming individual or recurring events for recording is simple. The application offers the ability to name upcoming feeds, program start and stop times, and add kill dates. The color-coded display makes it easy and fast to see if a feed is cued, recording, or finished.

GRASS VALLEY™ FEEDCLIP™

Viewer Window - Allows you to monitor video as it's recording, scrubbing, or playing back.

Record and Playback Tabs - Display all options for recording and playing back including Mark In/Out tools for creating clips. On the record tab, a position bar helps the operator quickly locate previously-recorded media. The playback tab features a Trimmer tool, Play/Stop functions, and slow motion controls. A unique name can be assigned to each tab.

Clip Lists - Both the Record and Playback tabs display the clip name, mark in point, mark out point, duration, and out cue. Clips can be played individually or grouped in a playlist that can be rearranged as needed.

EASY TO USE, EVEN IN PRESSURE SITUATIONS

The FeedClip system has been optimized for ease of use even in pressure situations. Its intuitive user interface consists of a single tabbed window that helps operators move quickly from recording to playback and from one channel to another. For complete flexibility, all tasks can be executed using keyboard commands (with color-coded keycaps) or point-and-click mouse commands.

TRIM AND PLAY CLIPS WITHOUT RUNNING TO THE EDIT BAY

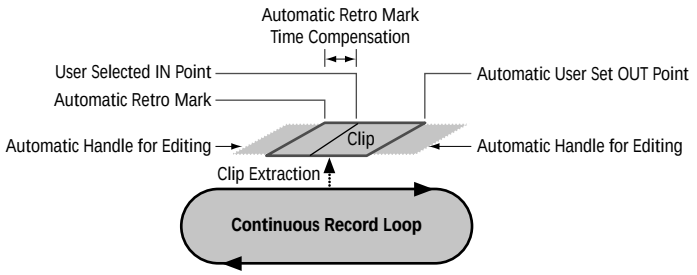
The FeedClip system is more than a disk-based replacement for feed recording tape decks. Using it, journalists or producers can view feeds as they record directly to disk, mark clip in and out points on the fly, and play trimmed clips straight to air, or make them available for editing, all without swapping tapes or sprinting to the edit bay. The system's unique Automark feature makes clip selection even faster, enabling a single keystroke to define both in and out points. Clips can be played back individually or back-to-back in selected groups. Pre-Roll and Post-Roll times, both with and without audio, can also be defined for individual clips.

NEVER MISS THE BIG MOMENT

Two FeedClip system features help ensure that producers never miss the start of an important event or a controversial play. The Continuous Record feature defines a pre-set loop that continuously records incoming feeds to disk without user intervention. Much like a tape loop, the original material remains intact until it is overwritten. Producers can set the record loop to any length depending on storage capacity—and extract clips at any time.

The FeedClip system's Retro Mark feature allows users to specify any amount of time to capture automatically prior to a mark-in point. When monitoring a fast-moving hockey game, for example, it is difficult to predict the exact moment when the puck will fly into the goal. Using the Retro Mark feature, operators can preset a reaction time of five or 10 seconds. When the puck glides into the goal, the operator simply presses the Mark In key. The FeedClip system captures not only the actual goal, but also the preceding seconds of setup and assists. This feature provides unprecedented speed and flexibility for creating sports highlight packages.

Retro mark, AUTOMARK AND HANDLES - FeedClip's unique Retro Mark feature allows you to define the time automatically captured before a Mark In point, ensuring that the start of the event is not missed even if you react a second or two late. You can select both the in and out points manually, or use Auto Mark to define the in and out points based on a predetermined clip length. The Handle Setup is used to add extra material automatically to the clip for adjusting edit points or adding transition effects.



GRASS VALLEY™ FEEDCLIP™

EASILY MIX FEED MATERIAL WITH FRESH LOCAL FOOTAGE

Editors often need to integrate shots from feeds with archived material or fresh footage shot in the field. To do so, the FeedClip system supports seamless integration with the Grass Valley Group NewsEdit™ editor, the only nonlinear editor designed for hard news production. To make the entire process more efficient, the FeedClip system offers the option of adding handles automatically to mark In and Out points. This option gives editors extra material for adjusting edit points or adding real-time transition effects during a NewsEdit system session. Users can export clips from a FeedClip system making them available for editing on NewsEdit editor via high-speed networking. And now, NewsEdit and FeedClip systems can run on the same workstation—so clips may be selected and edited during recording.

SOUNDS GOOD

The FeedClip system's enhanced audio features include support for up to 4 in/4 out audio channels; 2 I/O and 4 I/O options are available. In addition, the FeedClip system now features audio input metering and level control for accurate audio processing.

STANDARDS-BASED PC CONFIGURATION

The FeedClip system runs on a standards-based Intel Pentium PC. The system relies on the Microsoft Windows 2000 operating and file system, MPEG2, DV25 and DV50 video along with standard networking storage in 25 Mb/s and 50 Mb/s models. This standards-based approach allows stations of all sizes to take advantage of price/performance gains offered by the latest chip, software, and networking technologies. As with other Grass Valley Group solutions, upgrading is as simple as a software update or plug-in.

The FeedClip system is available in either one- or two-channel configurations. Each channel is capable of simultaneous recording and playback. The base computer platform includes an Intel Pentium processor and a system hard drive, as well as CD and floppy drives. Two storage bays are available in the rackmount unit for removable hard drives which can be configured up to 181 GB each. The platform acts as a bridge between the legacy broadcast infrastructure and computer-based interfaces.

SPECIFICATIONS

THE FEEDCLIP SYSTEM FEATURES THE FOLLOWING:

Codec for support of MPEG2 4:2:2 with a scalable data rate up to 50 Mb/s, DV25, and DV50 video—the codec is capable of encoding and decoding simultaneously (model dependent)

Video and Audio I/O options for interfacing with current broadcast video/audio environments (analog and digital)

Optional integrated storage capable of holding up to two drives—and virtually limitless expansion via external storage arrays

High-speed network interface for links to multiple platform

STANDARD CONFIGURATION:

Intel Pentium III, 256 MB RAM, 20 GB EIDE System Drive, CD-ROM Drive, 1.44 Mb Floppy Drive, PS/2 Keyboard and Mouse

5 Slot PCI Platform

Dual format compression engine

ATI Graphics Card

Ethernet 10/100 Network Interface on Motherboard

Windows 2000 Operating System

VIDEO:

NTSC, 525/59.94 (240,248, or 256 active lines per field)

PAL, 625/50 (288 active lines per field)

Inputs: Composite, Y, R-Y, B-Y Component; S-VHS, CCIR 601 Serial Digital

Outputs: Composite, S-VHS, CCIR 601 Serial Digital

Compression: MPEG2, 4:2:2, user-selectable compression bit rates, DV25, and DV50 (model Dependent)

AUDIO:

48 KHz 16-Bit PCM, uncompressed

Inputs: 2 or 4 Channel, Balanced, Unbalanced, and AES/EBU

Outputs 2 or 4 Channel, Balanced, Unbalanced, and AES/EBU

TIMECODE:

Input RS-422 and RS-232 Protocols

LTC (NTSC/SMPTE, PAL/EBU)

PHYSICAL DIMENSIONS:

Chassis: Standard EIA Rack Mount (Floor standing tower unit available)

Dimensions	cm	in
Height 4RU	17.8	7
Width	48.3	19.0
Depth	53.0	20.8

POWER REQUIREMENTS:

Power: 400 Watts for rack mount system, 300 Watts for tower system

Voltage: Switch Selectable, 120VAC @ 6.2A or 240VAC @ 3.1A

Frequency: 47-63 Hz

OPTIONS:

RAID3, RAID5 or JBOD (RAID0) (Ultra SCSI, Fibre Channel)

15" or 17" Monitor and Keyboard

Up to 181 GB Media Storage

Media Drive Expansion Rack

Fibre Channel or Gigabit Ethernet Network Interface Card

ORDERING INFORMATION

For information on ordering this product, please contact your Grass Valley Group sales representative

GRASS VALLEY™ NEWSQ™

BUILT FOR SPEED AND WORKFLOW EFFICIENCY.
TUNED FOR NEWS.

For news broadcasters that do not have an existing playback server or control system, Grass Valley Group offers NewsQ, an affordable manual playback solution. Grass Valley Group NewsQ features intuitive playlist management software running on a standards-based PC platform. The system is easy to use, even in pressure situations, cost-efficient, and simple to upgrade as technology evolves.

NEW! NEWSQ FEATURES

- Format independence— MPEG2 up to 50 Mb/s, DV25, and DV50 support (model dependant)
- More audio channels—up to four out (depending on optional interface)
- Audio output metering and level control
- Six programmable GPI input triggers

STANDARD FEATURES

- Two-channel A/B-roll manual playlist management
- Simultaneous or independent playback on two channels
- Insert, move, or delete items in a playlist without interrupting playback
- Instant roll playback
- Quick recue and cue next/previous stories for playback
- Trimming of individual stories
- Import/export of stories
- Viewable duration countdown for each story playing
- GPI triggered and genlocked play to air
- Easy to upgrade through simple software updates
- Part of complete Grass Valley Group Digital News Production Workgroup—integrates via high-speed networking with Grass Valley Group FeedClip™ integrated feed capture system and Grass Valley Group NewsEdit™ nonlinear editor

The Grass Valley Group offers a solution that addresses the entire news production process. One that works as fast as you do. One that can get stories on air quickly and efficiently. One that can increase the production value of your news content. And one that is more economical than tape-based solutions.

The Grass Valley Group™ Digital News Production Workgroup offers ingest, edit and play to air products using off-the-shelf computer technologies. Built for speed and efficiency, it includes the NewsQ™ system for flexible and affordable playlist management. The simple NewsQ interface allows quick, interactive changes and is designed for instant roll, two-channel manual playout.

ORDERING INFORMATION

For information on ordering this product, please contact your Grass Valley Group sales representative

MANUAL PLAYLIST MANAGEMENT

Flexible and format independent, the Grass Valley Group's Grass Valley Group NewsQ system offers simple two-channel A/B-roll playlist management for MPEG or DV video. Using the NewsQ player, playback operators can quickly enter a running order of stories and clips, assigning each to an A list or B list. The NewsQ player then cues the stories, letting operators manually trigger them for play to air. A countdown clock helps operators monitor the progress of each story during playback.

For complete flexibility, playback operators can insert, move, or delete items from a playlist without interrupting playback. In addition, operators can:

- Cue to any frame of any item in the playlist
- Freeze the last frame of an item
- Continuously loop a single playlist item
- Pause and resume an item currently being played
- Jog/shuttle to new start/stop frames prior to playing an item in a playlist

The NewsQ player also accommodates last-minute timing changes, allowing operators to trim the beginning and end frames of stories with frame accuracy.

The NewsQ player can fortify redundancy in operations where a Profile® system is the primary playback device—providing affordable peace of mind. By sending clips to both the NewsQ player and a Profile device, the NewsQ player can serve as a low-cost backup for the Profile system.

SOUNDS GOOD

The NewsQ player includes enhanced audio features, including support for more audio channels—two out or four out. And for greater audio control and monitoring, the system includes audio output metering and level controls.

STANDARDS-BASED PC CONFIGURATIONS

The NewsQ player runs on a standards-based Intel Pentium PC. The system uses the Microsoft Windows 2000 operating system, MPEG2, DV25, and DV50 video (model dependent) and standard networking and storage technologies. The reliance on standards allows even the smallest broadcasters to leverage declining cost curves and take advantage of the latest technologies. Upgrading is easy too, typically involving a simple software update.

TOOLS NOT TOYS

There are more predictions about the impact of the Internet on broadcasters than there are options at a coffee bar. It's an advertising bonanza. It's a financial boondoggle. It will replace the broadcast medium. It's not worth a broadcaster's worry.

Such prognostications—at both ends of the spectrum—are overstated, if not completely untrue.

Regardless of the Internet's reach and revenue potential, broadcasters and video professionals remain the preeminent creators of high-quality content. Yet there's no question that the Internet is a viable, compelling medium. Indeed, broadcasters are very interested in integrating digital streaming into their production and distribution operations—and making it a part of a no-nonsense business model that lets them get any content, any place, any time.

But there's a catch.

Broadcasters making the transition to digicasting want to exploit the capabilities of the Internet without making major changes in their workflows. They want flexible solutions that let them maintain equilibrium in today's economy and make step-wise investments in their evolving business models. Even though the revenue model is still a work in progress, broadcasters know Internet streaming will play a big role in their future. So they want to be prepared when that future arrives.

Tools, not toys

Notwithstanding the development, reach, and adoption of various broadband technologies, broadcasters need to integrate Internet streaming into their workflows in a practical, efficient, and cost-effective manner.

And that means tools, not toys.

It means cost-effective solutions that require little employee retraining and no additional steps in media preparation. These solutions can't require special integration. And they can't be expensive to install, maintain, or operate. But they should produce the best quality output possible, clean and condition dirty input signals and signals requiring conversion, and enhance images. And they must meet the reliability demands of a professional production environment. Against this set of

requirements, conventional streaming approaches don't pass muster. They generally require broadcasters to invest in custom solutions that are expensive to operate and maintain—or costly, one-size-fits-all service offerings. Or that they kludge together simple point products that focus on small parts of the solution.

By comparison, the Grass Valley Group's Aqua Internet encoder offers a turnkey system that generates streaming bandwidths ranging from 28.8 kb/s (simple audio) to 2 Mb/s (DVD-comparable video) and supports all major streaming formats, including Windows Media Audio and Video 8, RealNetworks' RealVideo and Apple's Quick Time.

Architected to provide the highest streaming throughput per rack-unit of space, the Aqua encoder's One Pass Encoding™ technology can pre-process, capture, clean and encode an input source and render it into multiple streaming formats at multiple bit rates—all in real time. Accessible through any standard Web browser, the encoder also offers an efficient, unified user interface, simplified input/output controls, and batch processing for "lights-out" operation.

As part of the Grass Valley Group's Web Publishing solution, the Aqua encoder lets broadcasters and video professionals integrate real-world streaming technology with their storehouses of content. It's designed for lock-tight integration with video servers such as the Profile line, which has more broadcast content stored on it than any other. It also features interfaces to rights management systems, the use of the Microsoft.NET framework for remote encoding, and will feature interfaces to various e-commerce and digital media publication and syndication applications.

The Web Publishing Solution, which also includes WebAble technology for streamlining the repurposing of content to the Web and the ContentShare software platform for media asset management, is designed to associate a digital asset with its appropriate metadata—descriptive text, pricing information, legal rights, content shelf life—and make that metadata available through standard eXtensible Markup Language (XML) templates for online publishing.

For digicasters demanding high quality and great efficiencies, it's an approach that only makes sense.

QUICK REFERENCE GUIDE TO GRASS VALLEY GROUP **WEB PUBLISHING SOLUTIONS**

51 **Aqua Internet Encoder**, a turnkey system architected to provide the highest streaming throughput/rack-unit of space compared to any product in its class

52 **WebAble**, a tool suite for streamlining repurposing of Profile-based content

54 **ContentShare**, an open, standards-based software platform for information access and exchange

AQUA INTERNET ENCODER

FEATURES

- Addresses all major streaming media formats:
  - Microsoft Windows Media
  - RealNetworks RealVideo
  - Apple QuickTime
- Produces encoded streams from 28.8 kb/s to more than 2 Mb/s
- Real-time or faster encoding
- Three operational modes:
  - Lights on for user-driven operation
  - Light out for unattended operation
  - Crash encode for high-priority and deadline-driven jobs
- Integrated signal conditioning for pre-, post-digitization
- Basic pre-digitization editing
- Load-balancing software for workload distribution
- Use of Microsoft .NET framework
- Interfaces to rights-management software
- Designed for future interfacing to e-commerce and digital media publication and syndication applications
- Unified user interface for all functionality

Architected to provide the highest streaming throughput per rack-unit of space, the Aqua encoder features One Pass Encoding™ technology that lets it pre-process, capture, clean, and encode an input source, and render it into multiple streaming formats, at multiple bit rates—all in real time. Unlike other encoders that work in a time-consuming, serial fashion, the Aqua encoder uses multiple, high-density processing units working in parallel. And, the Aqua encoder can be accessed through any standard Web browser.

The Aqua Internet encoder is ideal for broadcasters, encoding labs and services, broadband ISPs, Fortune 500 companies, Webcasters, independent program producers, and other high-quality content providers looking to stream video to the Web.

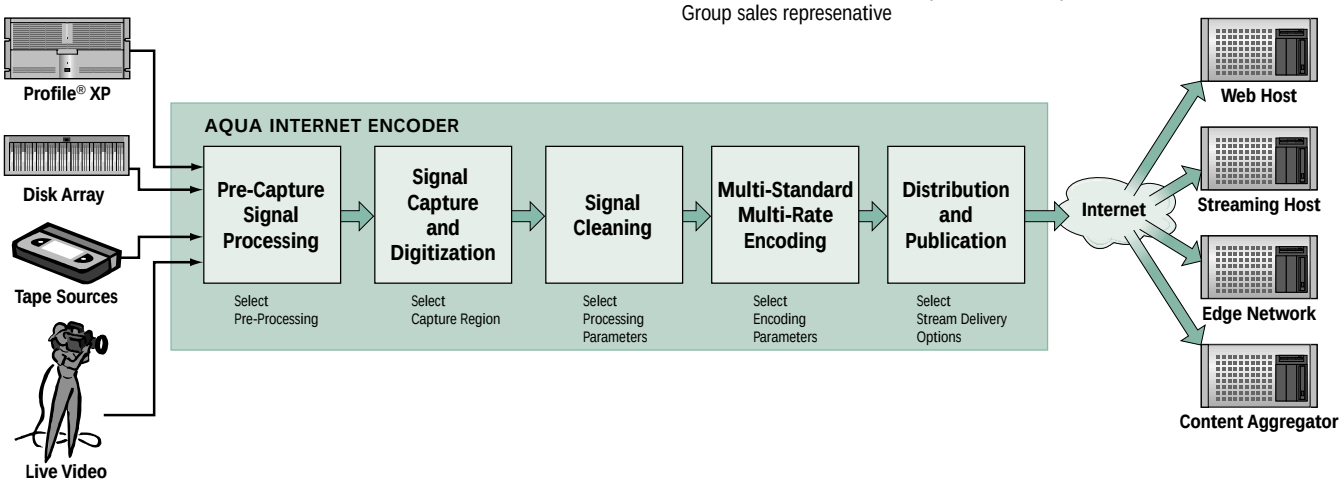
The Aqua encoder addresses stream bandwidths ranging from 28.8 kb/s (standard audio) to greater than 2 Mb/s and supports all major streaming formats, including Microsoft's Windows Media, RealNetworks' RealVideo, and Apple's Quick Time. It features interfaces to rights management systems, uses standard load-balancing software to distribute workloads, and uses the Microsoft .NET framework so that users can work directly with the encoder regardless of its location or the location of their materials. It will also feature interfaces to various e-commerce and digital media publication and syndication applications.

The encoder can operate in three distinct modes: lights on when a user is sitting at an interface, driving the controls; lights out, when the encoder is operating on its own, either executing jobs from the batch queue or looking for source material to appear and then encoding it; and crash encode, for applications such as breaking news or high-priority jobs that require the temporary suspension of normal operations.

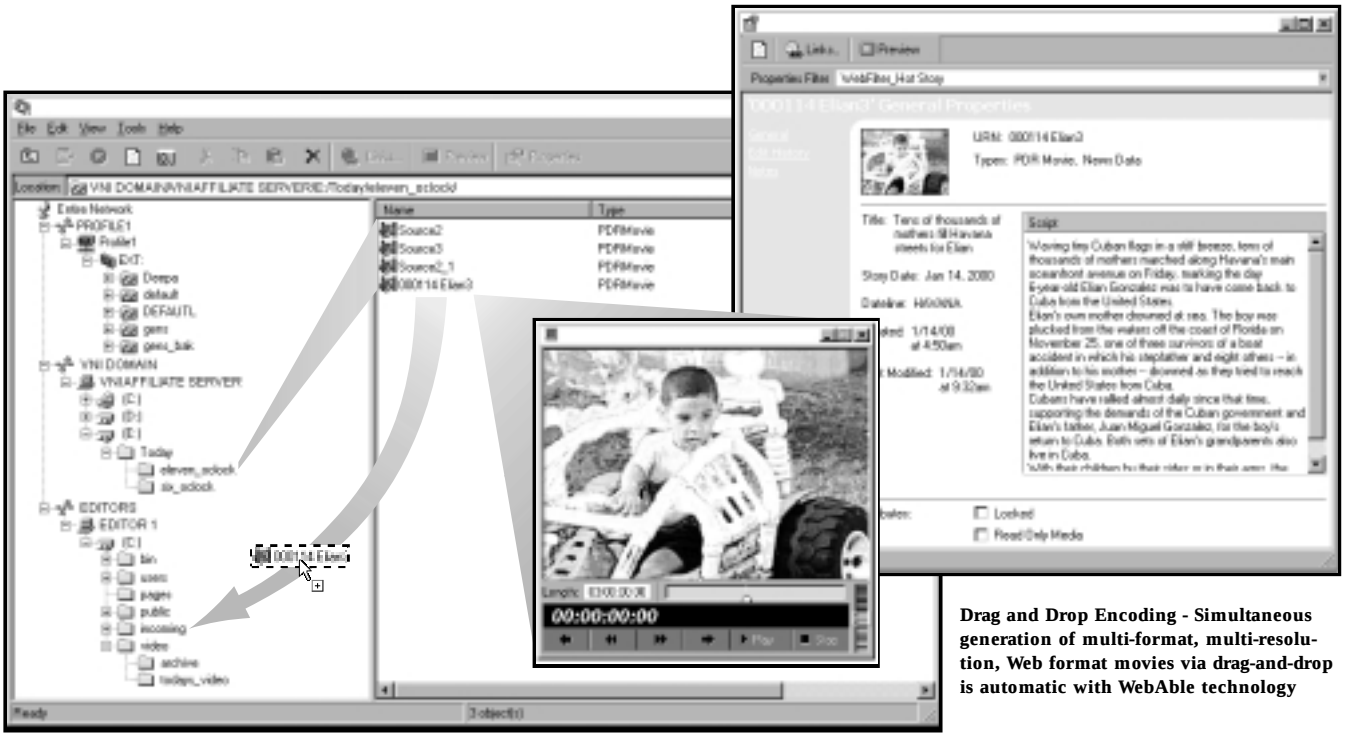
The Aqua Internet encoder is part of the Grass Valley Group's Web Media Publishing offering, which includes its Emmy® award-winning Profile® XP Media Platform, ContentShare™ platform for media asset management, and WebAble™ technology for streamlining the re-purposing of content for the Web.

ORDERING INFORMATION

For order information, contact your Grass Valley Group sales represenative



WEBABLE™ TOOL SUITE



Drag and Drop Encoding - Simultaneous generation of multi-format, multi-resolution, Web format movies via drag-and-drop is automatic with WebAble technology

FEATURES

- Streamlines and simplifies the process used by video professionals to repurpose their Profile XP high-resolution video content for Web distribution
- Builds upon the ContentShare Explorer's ability to locate, access, and manipulate assets
- Utilizes the XML-based interfaces provided by the ContentShare Platform and ContentShare-compliant applications to repurpose other asset types such as text scripts and graphics
- Allows Web content authors to access high-resolution video information as soon as the material is recorded on a Profile XP Media Platform.
- Supports RealNetwork stream files and Microsoft Windows Media including multiple bit-rate files

HOW DO I GET MY MEDIA ON THE WEB?

It's the question that everyone who wants to use video on their Website is asking. And the answer must encompass a solution that moves at the same fast-paced rate as today's broadcast techniques.

The Grass Valley Group's WebAble™ complete repurposing tool suite gives broadcasters and other high-quality content providers a simple, easy-to-learn-and-use, drag-and-drop method for creating streaming media. Leveraging the popularity of the Profile® line of video servers—which today store more broadcast content than any other server—WebAble technology makes streaming media creation as easy as click, drag, and go.

As the only standards-based technology that enables broadcasters to easily re-purpose high-value content for the Web without changing their existing production workflow, WebAble tools let users locate, access, and view media assets; transfer those assets to Web servers and encode them for online viewing; and incorporate those assets into online page layouts using any Web authoring application.

WEBABLE™ TOOL SUITE

WebAble consists of two basic tools: ProBrowse™, which lets users record MPEG-1 video on a Profile XP Media Platform and browse that video from their desktops; and Streamcode™, which converts the video into streaming formats for the Web. It is also tightly integrated with the Grass Valley Group's ContentShare™ software platform for media asset management. This integration is the key to the simple, seamless process for repurposing content using WebAble: it enables users to locate video on a Profile XP Media Platform system, drag it to a Microsoft Windows 2000-based Web server, and initiate the streaming conversion process as part of that transfer. It also allows any ContentShare™ compliant application to send required Metadata along with the video using Extensible Stylesheet Language (XML) templates. The video is ready immediately to be merged with any standards-based Web publishing tool.

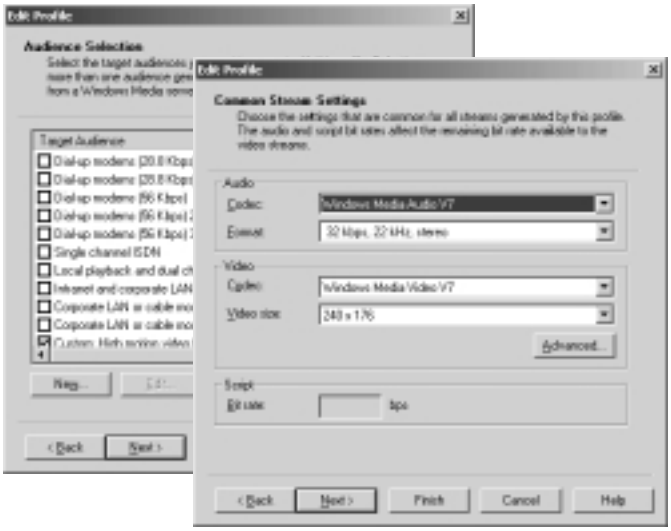
The Grass Valley Aqua Internet Encoder provides a complementary hardware capability to pre-process and encode video from multiple sources, including live video, with the power to generate multiple real-time streams at multiple bit rates. The Aqua Internet Encoder can also be configured to turbocharge WebAble technology and provide even higher video quality with pre-encode video processing and filtering.

SPECIFICATIONS

- Requires: 450MHz P3 or faster, 128M RAM Minimum, Windows 2000
- Initial targeted Internet streaming formats:

– Windows Media Technologies
– RealNetworks stream files

- Easy to use "template editor"



STREAMING PROFILE TEMPLATES - WebAble includes flexible template editing tools which make defining the resulting streaming media simple, intutive, and user friendly

ORDERING INFORMATION

For information on ordering this product, please contact your Grass Valley Group sales representative

CONTENTSHARE™ PLATFORM

FEATURES

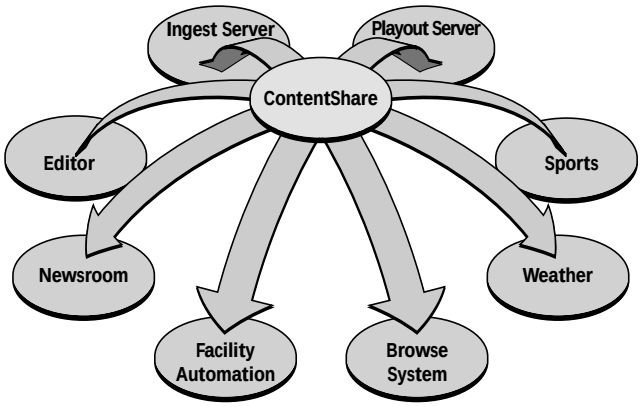
- System-wide Asset Mining – find any asset regardless of type or location
- Dynamic Discovery – Add and remove equipment from a system with no reconfiguration
- Logical Equivalence Relationships – Create and maintain links between related assets
- Find information across applications, without knowing how it was stored
- Integrated Development Environment for rapid development

From scripts, effects, and historical archives to closed captioning, automation, and billing information, video professionals are using and creating vast amounts of digitally stored information. This information exists in both data essence and Metadata form and its effective management is one of the most crucial problems faced by video production and distribution organizations today. The applications that create this content often work only in isolation, limiting the global accessibility of their data and preventing users from searching for or linking to assets outside their domain. Broadcast and other media system application developers continue to face demands for higher and higher integration between their own application and others. Users demand features that give them the ability to easily and efficiently select, manipulate, and exchange media assets. Applications such as electronic publishing, program distribution, digital cinema, e-commerce, and internet-based news distribution also need high levels of integration. The ContentShare Platform is the first comprehensive software framework designed specifically to help facilities achieve this high level of integration.

The ContentShare platform presents an innovative approach to the complex problem of application integration. It establishes a common language that allows applications to request information and assets from each other without having to know how that information is stored. The ContentShare platform also decreases integration time and significantly reduces the costs associated with software development for integrated systems.

CONTENTSHARE EXPLORER

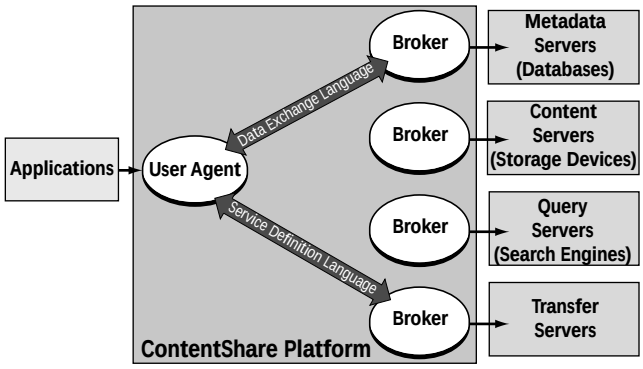
Leveraging the open, Internet-based technologies of the ContentShare platform for media access, ContentShare Explorer is a Windows Explorer-style application for networked media asset management. It's easy to use and is extensible to a wide range of storage devices and applications. It has the features necessary to locate, organize, and manage assets regardless of physical location or asset type.



Inter-Application Communication - ContentShare breaks down the barriers between applications by enabling inter-application data and metadata exchange.

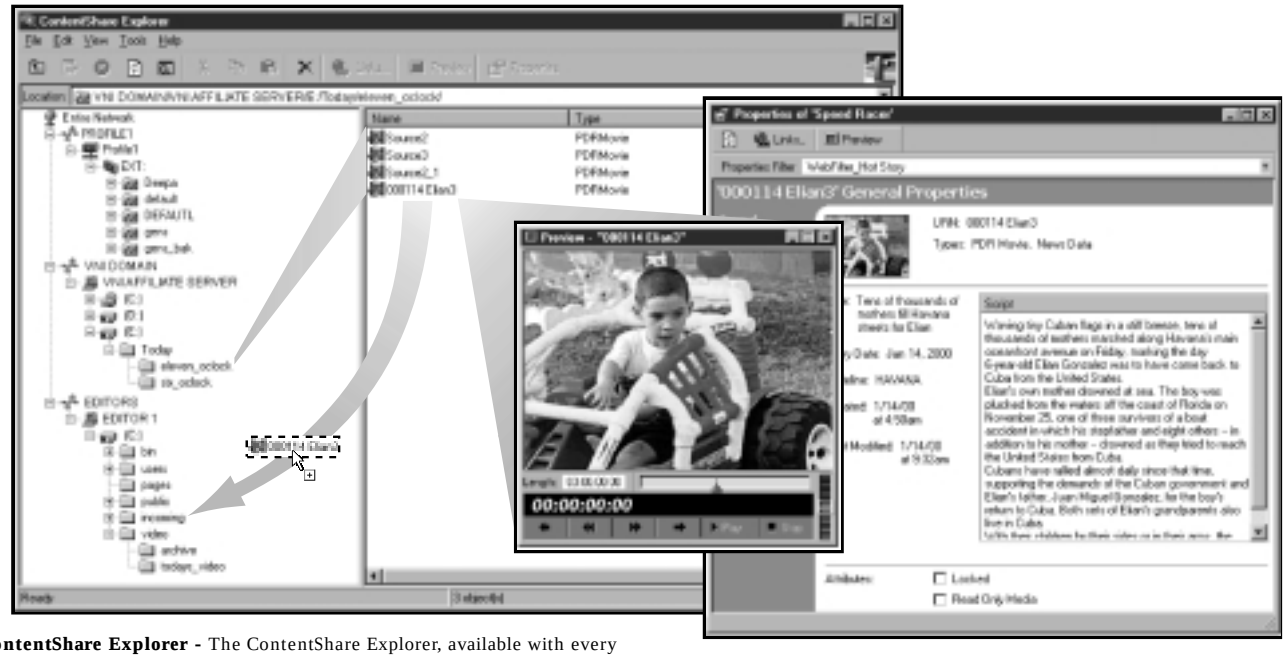
ASSET LOCATION AND INTERCHANGE

One fundamental component of the ContentShare Platform is known as a "broker." Broker-enabled applications in a ContentShare-based system can allow other applications to access their information and assets. This approach opens the door for customers to query multiple applications with a single search. Applications all have different types of information and different ways of describing that information; yet brokers allow search results to be presented in a manner that can be understood by other ContentShare Platform-compliant applications.



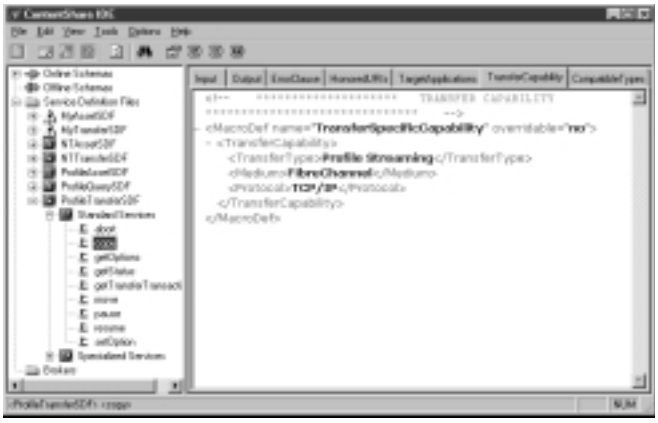
Brokers and Agents - User Agents provide application access while Brokers provide "back-end" data access. They communicate via two defined "languages": one for data exchange and the other for describing available services.

CONTENTSHARE™ PLATFORM



ContentShare Explorer - The ContentShare Explorer, available with every Profile® XP Media Platform, and a fundamental component of the Grass Valley Group WebAble™ toolkit, is an example of the type of application that can be enabled by ContentShare. Application Source Code is included with every ContentShare licensed SDK.

Wizards - The ContentShare Integrated Development Environment includes many "Wizards" that significantly decrease the time required to create ContentShare brokers. For example, the "Service Definition Wizard" includes tools for specifying the way in which Universal Resource Names (URNs) and Identifiers (URIs) are defined. This diagram depicts some of the tools available for creating and modifying the types of URIs applicable to a given asset type.



XML Development Environment - ContentShare services are defined using industry standard XML. The ContentShare Development Environment allows the XML code to be easily developed and maintained. This diagram depicts the tool that allows these XML definitions to be created, modified, and viewed.

CONTENTSHARE™ PLATFORM

ASSET LINKING

The ContentShare Platform also permits applications to create and utilize links among assets. A common example of this linkage would be a low-resolution "browse" version of a video clip that represents a higher-resolution copy. The ContentShare Platform helps makes these associations visible to other applications so that a browse copy could be used to help refine the search for high-resolution material. Another example of asset linkage would be a news script that has multiple references to video within it. The links could be used to help a user or application find the video referenced by the script. It is possible to establish links among assets from different applications.

GLOBAL USE OF ASSETS

Because of its distributed architecture, use of the ContentShare Platform can extend across a wide area network to multiple geographically separate locations. This approach, which is based upon many Internet standards and technologies, like Java and XML, lends itself to bridging facilities and their assets. The ContentShare Platform helps in the locating and interchange of assets not only among applications within a facility but among facilities as well.

PROGRAMS

ContentShare Platform products are provided, through anually renewable license agreements, to both application developers, for the purpose of creating ContentShare compliant software, and to systems integrators, for the purpose of deploying ContentShare compliant applications in real world environments. Broadcasters, production facilities, and other users can request ContentShare compliant applications from their developer or system integrator of choice. Developers and integrators are continually being added to the list of adopters who are empowering their applications with the power, simplicity, completeness, integration, and Grass Valley-style innovation of the ContentShare Platform. For the latest on applications that leverage the power of the ContentShare Platform, visit www.contentshare.com

For a list of ContentShare licensees visit www.gvgcontentshare.com

SPECIFICATIONS

CONTENTSHARE PLATFORM

- Opens communication for asset sharing
  - Establishes a common language that all application can use to find, browse, edit, and operate on information and assets
  - Applications can access other assets without having to know anything about how the other application stores its data internally
  - Existing asset type can have additional metadata "fields" added without breaking existing applications
  - New applications can join the system without requiring the system to be redesigned
- Location independent link
  - Applications can register assets as they are created or only as needed
  - Other applications can reference assets without knowing their physical location
- Asset linkage
  - Applications can assign relationships, that can be seen by other applications, to assets
  - Provides a single, logical name for a group of assets

CONTENTSHARE EXPLORER

- Multiple views of assets
  - Users can find assets by physical location, various advanced searches, or by asset properties such as metadata
- Dynamic discovery of assets
  - User interface automatically updates
  - Inventory automatically available to all ContentShare Explorer users with no reconfiguration and no additional work
- Domain and devices display scope definition
  - Users can view and search only devices that are relevant to them
  - Simplifies the ability to rapidly find information in large-scale environments
- Advanced search
- Users can search on many types of metadata
  - Users can perform complex schema-based searching in addition to simple keyword searches
  - User can easily identify appropriate assets by allowing many search criteria including data ranges and scopes
- Search subsets
  - User can narrow a search to return results only of specified types
- Metadata display and modification tools
  - Users can see detailed descriptive information associated with a given asset
- Multiple simultaneous transfers
  - Users can move material between several devices at the same time
  - Protocol matching
  - Immediate visibility to the transfer queue

WANT TO SLEEP AT NIGHT?

A pocket guide to building the right media infrastructure

A good digital media infrastructure is like the foundation of a building. Do it right, and you've got the strongest digital underpinnings possible. Get it wrong, and it's just a matter of time before the cracks start to show.

A good infrastructure gives you the confidence that your $3 million Super Bowl spots will play without doing a make-good. Its flexibility will keep pace with your next new business model or revenue generation opportunity. It handles standard-definition signals today and high-definition signals tomorrow with minimal impact—to your wallet and your state of mind. It lets you mix and match best-of-breed equipment and applications without headaches. It lets you implement new business models like central casting and Internet streaming without creating a science project—or robbing a bank. And most importantly, it monitors its health while you, well, sleep.

So what is the best way to build a future-proof media infrastructure?

Glad you asked.

Playing the $3 million super bowl ad to air flawlessly

When it comes to getting high-caliber content to air or re-purposed online, zero-failure is the only measure. Whether the business model is centralized or distributed, an operation's storage, routing, and signal-conversion products must offer rock-solid performance throughout the signal path—while adding value.

Take a central casting operation that serves a station chain or affiliate group. Every single channel relies on this one facility. The smallest glitch could be economically catastrophic.

Fortunately, for those undertaking large, new centralized models, the Grass Valley Group's Media Area Network (MAN) real-time shared storage solution provides the same reliability for which the Profile digital video platform is known. That's Profile—the professional product broadcasters are using in events like the Super Bowl.

Unlike other shared-storage solutions that force users to choose between having high-quality video and having access to third-party tools for manipulating that video, the Grass Valley MAN simultaneously provides access to standard Windows NT-based tools and to broadcast-quality video record and playout from Profile devices. It offers nearly endless channel expansion capacity, a common RAID-protected storage network, and a no-single-point-of-failure design. And it gets network compatibility issues out of the way to extract the greatest workflow efficiencies—from ingest, editing, and browse to Web publishing and transmission.

Keeping pace: building for ultimate flexibility

Buildings that haven't been earthquake-proofed are much more likely to shake in a temblor than the elastic structures being built today. Media infrastructures must be similarly limber—flexible enough to meet new customer demands and new revenue-generation opportunities. Think about signal management. It's more cost-effective and certainly less disruptive to add crosspoints or plug in new modular products than to rip out and replace a signal-management backbone. That's why Grass Valley routers offer incredible scalability—from a handful of crosspoints to millions. It's also why Grass Valley 8900 Series modular products plug into 2000 Wideband Series frames, for use with high definition signals.

For flexibility, 8900 Series and 2000 Wideband Series products can handle all major video and audio formats. On the routing side, the 7500 WB wideband router can switch any digital signal from 10 Mb/s to 1.5 Gb/s. The new compact Concerto™ Series router lets users mix analog and digital audio and analog and digital video in the same frame. And the Grass Valley Group's patent-pending FlexPoint technology lets users reconfigure 14 ports as inputs or outputs to suit the demands of a particular application.

Grass Valley routers derive additional flexibility from Encore, the first open, scalable solution for facility control. With a highly configurable design, it offers a la carte options for centralized and distributed router and machine control, remote monitoring and diagnostic capabilities using the NetCentral software, and signal-integrity analysis.

One of the basic building blocks of flexibility is multi-format support, which is a mainstay across the Grass Valley Group's product lines. The Profile XP Media Platform, for example, is the industry's most open, handling MPEG, DVCPRO, SD, and HD formats.

In addition to baseband video and networking, the Profile XP Media Platform supports SDTI, which enables it to accept compressed video at up to four times real-time speed. The Grass Valley Group is also focused on streamlining the distribution process and is implementing interfaces for direct exchange of materials that use the popular MPEG Transport Stream (MTS) standard. Its MTS interface, called Flexistream, is designed to eliminate many of the decoding and encoding stages present in the network distribution path. Implementing Flexistream on the Profile platform preserves editing flexibility by unwrapping, storing, and moving materials as separate audio, video, and data tracks

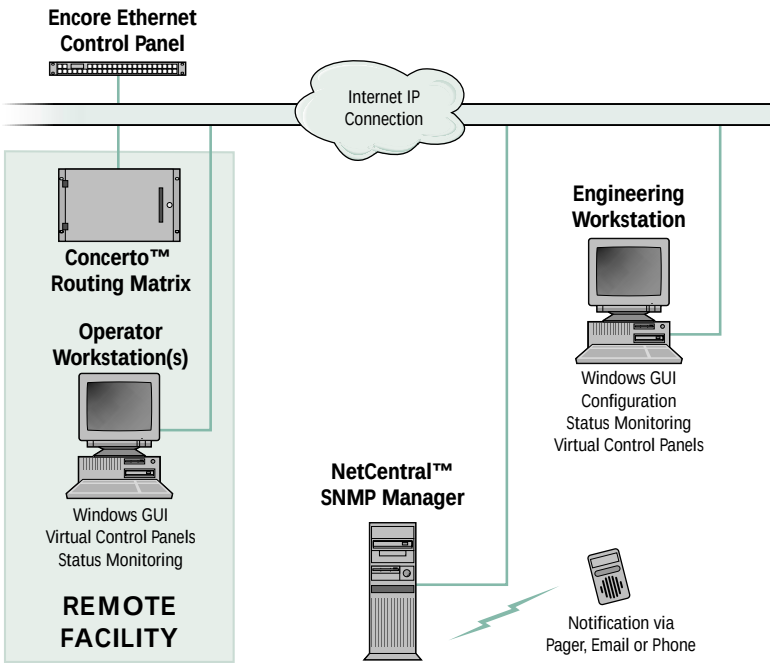
Getting to high-definition

Whether or not they need it today, complex, centralized operations do need to be ready for high-definition (HD) programming. But they don't need a painful transition.

From servers and routers to switchers and modular gear, the Grass Valley Group is HD ready. The plug-and-play Profile XP Media Platform can easily upgrade from standard definition (SD) to HD. Designed to be the most cost-effective HD server on the market, it lets users to grow their server platform as their needs evolve by adding channels or storage capacity. And, unlike other shared-storage solutions, the Grass Valley MAN enables a smooth and immediate HD transition.

Meanwhile, the Grass Valley 7500 WB wideband router, together with the 8900 Series and 2000 Wideband Series of modular products, offer a step-wise, cost-effective transition from analog to SD to HD—without changing core signal-management infrastructures.

Finally, Grass Valley switchers are designed with an eye toward HD. For example, the new low-cost Zodiak™ system is an excellent solution for SD facilities today that require an HD path tomorrow.



Mixing and matching applications

What's the point of having a powerful, centralized operation if people can't use the assets or applications of their choice? With the Grass Valley Group's standards-based approach, there are no such dead-ends. Nor the possibility of technological obsolescence.

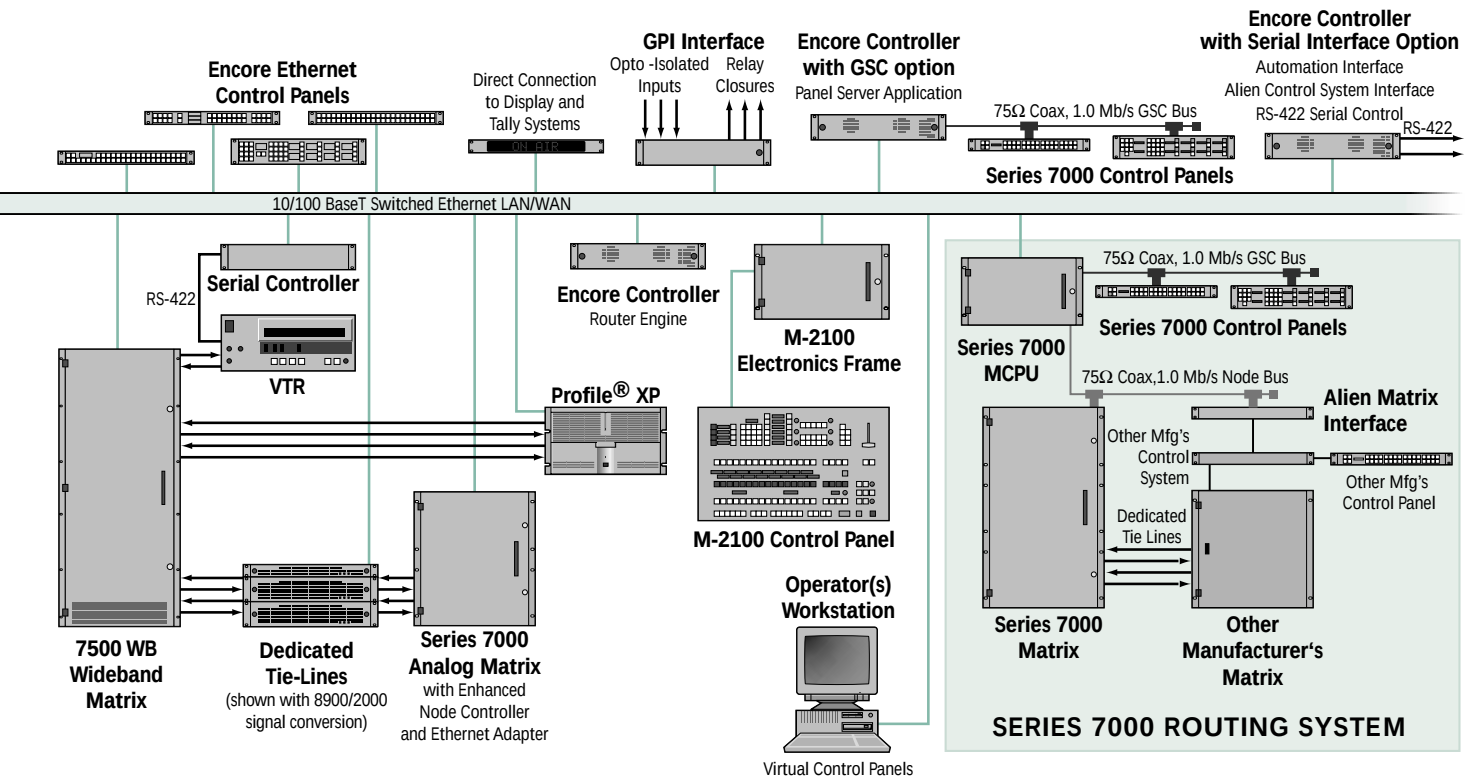
Whether it's applied to playout of a Super Bowl ad or editing a news package, an infrastructure based on open, standards-based technologies for storing, transporting, retrieving, and manipulating digital assets is the best way to ensure you are not locked into a limited choice of applications.

At the core of each Grass Valley Group product is a common set of architectural parameters: increased use of Grass Valley Group and third-party software; use of the latest chip and networking technologies; and the combination of these components with smart mechanical designs for more compact products and more competitive price/performance. In support of the company's strategy to offer its customers greater value and increased flexibility, these products also offer the industry's broadcast standards and format support, including that for SNMP, Windows NT and Microsoft's .NET framework, and streaming media formats such as Microsoft Windows Media Audio and Video 8, RealNetworks' RealVideo, and Apple's QuickTime.

Similarly, the Grass Valley MAN supports direct Win 32 API file system access for any Windows NT-based application. As well, it offers the most extensive video server API in the industry with more than 100 third-party software applications.

For moving digital assets among third-party applications easily, the ContentShare platform provides an open, industry-standard framework for information access and exchange based on the eXtensible Markup Language (XML) that any application can use. And since ContentShare is middleware, it can integrate with applications without impacting the way a production team works. Digicasters also need to exchange materials between products from different manufacturers—and do so in the most efficient manner possible. As part of an effort to facilitate product interoperability, the Grass Valley Group created GXF– a streaming file format for moving media files among heterogeneous pieces of professional television equipment and over IP.

THE GRASS VALLEY ENCORE™ FACILITY MANAGEMENT SYSTEM



So whether it's asset management, automation or nonlinear editing applications, a Grass Valley Group media infrastructure provides the strongest foundation.

Supporting new business models like Web publishing
Anymore, it's not enough to be a broadcaster—today's digicasters, and their infrastructures, must just as easily embrace new media like the Internet and interactive TV. And deliver content to these digital pipelines with drag-and-drop ease. Illustrative of such an approach is the Grass Valley Group's Web Publishing solution, comprised of the Profile XP Media Platform, the WebAble technology suite, and the Aqua Internet encoder.

WebAble technology streamlines the process of repurposing content from Profile systems to the Web. The Aqua Internet encoder offers a turnkey system with the highest streaming throughput per rack-unit of space compared to any product in its class. Supporting all major streaming formats, it can output everything from simple audio to DVD-comparable video, offers robust signal-conditioning tools, and can generate multi-format, multi-rate video streams—all in real time. Its signal-conditioning capabilities can also turbo-charge WebAble with the highest possible quality video.

Get your beauty rest
No matter how open, scalable, or flexible, a digital infrastructure has to work.

All the time.

Ensuring this kind of uptime means having systems with redundant, easily replaceable components. Grass Valley Group products exemplify this kind of field-friendly design. The Grass Valley Concerto Series router, for example, has front-accessible modules, boards, and fans for quick, hot-swappable service and expansion. Similar features let a technician service the components of a Profile XP Media Platform in 15 minutes.

From a systemic point of view, reliability also means getting a heads-up before things go wrong and making sure the right person knows how serious the trouble is. The predictive-failure capabilities of the SNMP-based NetCentral software, for example, can notify a technician or operator when a component is likely to fail, sending a notification via e-mail, pager, cell phone, or graphical user interface. And it can monitor a network of any size and scope using a standard Web browser, streamlining facility maintenance and management costs.

So you can implement a successful move into Digicasting. And get some rest at the same time.

QUICK REFERENCE GUIDE TO GRASS VALLEY GROUP **INFRASTRUCTURE SOLUTIONS**

88 **2000 Wideband Series** modular products for high definition

101 **8900 Series** modular products

61 **Encore**, an open, scalable facility control system

70 **7500 WB Wideband Routing Matrix**, able to switch any signal from 10 Mb/s to 1.5 Gb/s

67 **Concerto Series** compact router, for robust signal-type mixing in the same frame

10 **Profile XP Media Platform**, the industry's most open, supporting MPEG, DVCPRO, SD, HD, and MTS formats

9 **Grass Valley Media Area Network**, a real-time, no-compromises shared-storage system

64 **NetCentral**, SNMP-based software for remote monitoring and diagnostics

54 **ContentShare**, an open, standards-based software platform for information access and exchange

52 **WebAble**, a tool suite for streamlining repurposing of Profile-based content

51 **Aqua Internet Encoder**, a turnkey system architected to provide the highest streaming throughput/rack-unit of space compared to any product in its class

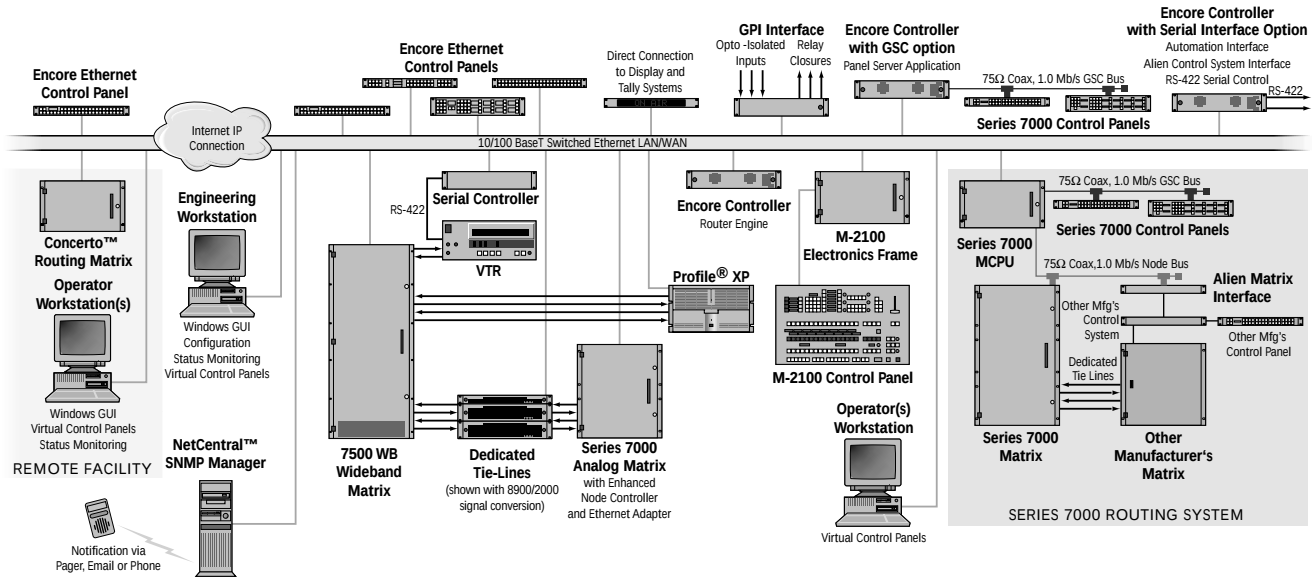
ENCORE™ CONTROL SYSTEM

FEATURES

- Scalable, a la carte design for selecting just the right level of control
- Controls routing matrices ranging from 16x2 to 4096x4096
- 10/100Base interfaces for fast,fully deterministic switching
- Choice of either DHCP or manual IP address assignment eases system installation
- Supports multiple controller frames for simultaneous control processing in large or complex systems
- Supports NetCentral software for SNMP-based status monitoring and diagnostics
- LAN/WAN support enables inter-, intra-facility control
- Assortment of dedicated hardware and computer-based software control panels
- Fully compatible with Grass Valley™ Series 7000 control system
- Interfaces with many third-party routing systems
- 48 VDC power capability makes Encore system controllers easy to integrate into telecommunications and cable facilities
- Full redundancy capability

A SCALABLE CONTROL SYSTEM THAT GROWS WITH YOUR NEEDS

The Encore™ system is an open, scaleable platform for full router and facility control. Featuring tight integration with automation systems, third-party routers, and other equipment, the Encore system makes it easy to consolidate media assets under a single, unified control system. The modular design lets broadcasters and other high-quality content creators select just the level of control they need. At its most basic level, the Encore system can configure the crosspoints of a single routing matrix—and easily expand that control up to 4096x4096. Users can also add tally and machine control via Ethernet, serial, or GPI interfaces. And a selection of hardware and PC software control panels, that work across the room or across the country via IP LAN/WAN connections, offers centralized or distributed management of all devices under Encore sytem control.



Sophisticated Control of Large and Diverse Systems - The Encore Control System adds new levels of functionality with many options for integrating Encore control into existing routing systems.

ENCORE™ CONTROL SYSTEM

SCALABLE SYSTEMS BEGIN WITH SCALABLE SOFTWARE

Encore system software can run standalone on a user-supplied PC for basic control of Grass Valley™ matrices and routers in a small facility. Even at this basic level, the Encore system offers complete configuration and robust control capabilities. It can configure matrices for multiple levels of control, set up tie-lines for transparent inter-matrix operations, and support multiple users with unique access privileges and restrictions. With software control panels, users can control sources and destinations right from their PCs.

In addition, the Encore system can control audio attribute processing on Grass Valley 7500 NB and Concerto Series digital audio matrices; users can swap two audio channels, invert either channel, sum the channels, or duplicate a channel to feed mono input to both channels.

SCALE UP TO 4096X4096 WITH ENCORE CONTROLLERS

Using dedicated and compact 2 rack unit (RU) controllers, users can scale an Encore system to support large, multi-matrix, multi-location configurations; its dedicated processing and real-time operating system offer fast, deterministic, frame-accurate switching with fixed latency for synchronized switching of as many as 4096 destinations. Users can combine multiple Encore controllers on an Ethernet facility network to increase throughput by dividing tasks – and program the controllers to function as dedicated control panel servers, tie-line managers, or as additional system controllers to speed overall system response. The Encore system is also fully compatible with the Grass Valley Series 7000 and many third-party control systems, to fit into established workflows easily.

For mission-critical applications users can add redundant power supplies and controller modules to increase reliability. Adding redundant Encore controllers to the network provides an extra level of redundancy for mission critical applications.

Each Encore controller frame can support two groups of eight serial I/O ports for applications such as automation interfaces. In addition, each frame supports two groups of 64 Global Serial Channel (GSC) nodes for integrating existing Series 7000 control panels into an Encore system.

MULTI-FACILITY SYSTEM CONTROL

Because the Encore system uses standard RJ45 10/100baseT Ethernet connections, users can expand control across multiple locations using standard IP networking techniques. From providing a journalist on the Encore system's network with a PC control panel for selecting sources to complete control of remote facilities with extensive routing matrices, the Encore system uses standard Ethernet routers, switches, and WAN/LAN equipment.

MACHINE AND TALLY CONTROL

Extensive and sophisticated machine control is available within the Encore architecture. Augmenting conventional serial control, the Encore system allows for Ethernet-based machine control for devices such as Profile® XP Media Platform systems. This control makes it possible to issue commands to applications across a network, such as those that oversee the transmission of programming and commercial spots to remote locations.

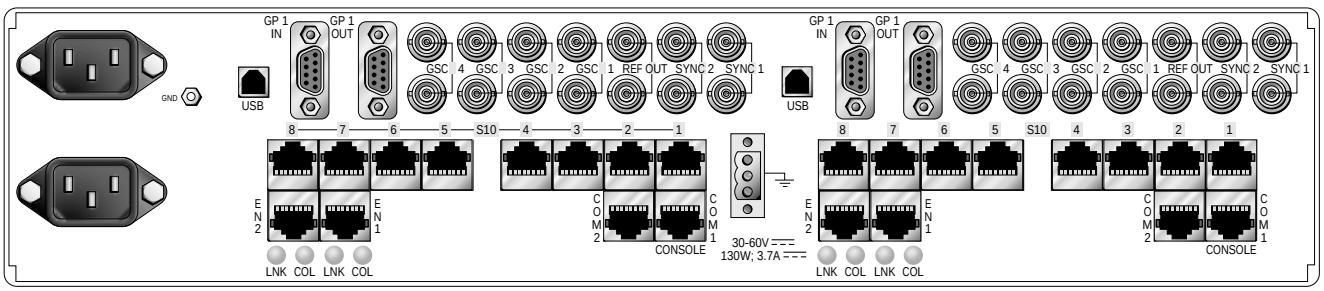
A dedicated 2 RU General Purpose Interface (GPI) with 24 individually connected, opto-isolated inputs and 24 relay contact closures is available for joystick override, source tally, under monitor display (UMD), and machine-start operations. The Encore system can also execute commands issued by automation systems, the Kalypso™ Video Production Center family, Zodiak™ video production switchers, and M-2100 master control switchers to control devices several levels away.

GLOBAL TIE-LINE MANAGEMENT

Tie-Line management, first introduced in the Series 7000 control system, allows for the transparent routing of signals between levels. Tie-lines make all the sources on a remote routing matrix available to users on a local matrix through software-controlled interconnections. When a user requests a source that is not found on the local matrix, the request is automatically assigned to a tie-line and acquired from the remote matrix. Placing conversion equipment on tie-lines between matrices with dissimilar signal types eliminates the need for a dedicated converter for each source. The Encore system adds to this proven technology the ability to configure tie-lines globally from a central location for all matrices in the system, including those located remotely.

LOGICAL MATRIX MAPPING

Logical matrix mapping maximizes crosspoint utilization by subdividing a physical crosspoint matrix into multiple logical matrices, eliminating the need for dedicated crosspoint modules for different types of signals. In addition, crosspoints can be selectively assigned to ensure that input signals are only routed to appropriate output destinations. These logical matrices can be tied to a single control level for simultaneous switching (such as audio/video, video/key, or R/G/B). Logical matrix mapping also makes it possible to group device connections, simplifying system cabling. The Encore system's matrix remapping feature minimizes system recabling associated with equipment upgrades. When changing the type or format of equipment on an input or output, the Encore remapping feature requires only a modification of the logical matrix table to reassign signals to the correct inputs or outputs.



Encore Controller - Redundant power and control are available for mission critical applications.

ENCORE™ CONTROL SYSTEM

SOPHISTICATED SNMP REMOTE MONITORING

To ensure optimal uptime, Encore system users can deploy Simple Network Management Protocol (SNMP) agents to proactively check the status of devices that reside on one or more facility networks. These agents can report status information—such as an over-temperature condition that may indicate improper air flow—to an SNMP remote monitoring and diagnostics package, such as the Grass Valley Group's NetCentral™ software, to trigger an action such as the paging of a technician. When used in concert with the Grass Valley 7500 Series and Concerto Series routing matrices, the combination of the Encore system and the NetCentral software offers unprecedented signal-integrity analysis and monitoring, as well as the ability to notify technicians when signals stray from user-defined parameters..

SOFTWARE CONTROL PANELS OFFER DESKTOP CONVENIENCE

For the occasional user, or a user in a remote location, software control panels can be displayed on any PC connected to the Encore system LAN/WAN. The Encore system lets administrators set a user's level of access and control to prevent unwanted operations and to grant new levels of functionality.

GROWING SELECTION OF CONTROL PANELS

For fast, push-button control in control rooms or studios, there are a variet of Encore control panels. Using an Ethernet connection, adding or relocating panels is quick and easy.

ADVANCED 32 BUTTON-PER-SOURCE PROGRAMMABLE CONTROL PANEL

- Great for use in tape or disk duplication rooms and mobile applications for fast, immediate access to sources in a compact 1 RU panel
- Multiple levels to selected destination(s) with full breakaway control
- Software-enabled local configuration of source-selection buttons
- Per-button assignment of source, destination, and salvo
- Per-button assignment of audio attributes to digital audio outputs on 7500 NB and Concerto Series matrices

48 BUTTON PROGRAMMABLE CONTROL PANEL

- 1 RU panel that can distribute a source to multiple, grouped destinations (machines) with the push of one button
- 48 programmable push buttons to select source, level, destination, or salvo
- Function as a stand-alone panel or as an expansion panel for the 32 button-per-source control panel (above)

ADVANCED UNIVERSAL XY PROGRAMMABLE CONTROL PANEL

- 1 RU control panel for simple source and destination selection
- Can be programmed to control single or multiple destinations
- User-programmable keypad with prefix/suffix selection to preset sources for subsequent takes
- Separate displays for preset, status, and level
- 8 configurable buttons for sources, destinations, salvos, or breakaway operations

EIGHT DESTINATION PAGING CONTROL PANEL

- 2 RU panel for simultaneous control and display of any 8 sources and destinations
- User defined configurations with password protection
- Push button access to 48 prefixes, 48 suffixes, and 48 pages
- Scroll through pages of sources, destinations, salvos, and levels

ORDERING INFORMATION

SOFTWARE

ENC-ECS
Encore Control Software

ENCORE CONTROLLERS

ENC-CTLR-FRM
Encore Controller Frame. Includes basic software, power supply and controller

ENC-CTLR
Additional Controller Module

ENC-SIO
8 Port Serial Control Module

ENC-GSC
GSC Coaxial Control Panel Interface for Series 7000 Control Panels

ENC-CTLPS
Additional Power Supply for Encore Controller

CONTROL PANELS

ENC-BPS
Advanced 32 Button-Per-Source Programmable Control Panel

ENC-48B
48 Button Programmable XY Control Panel

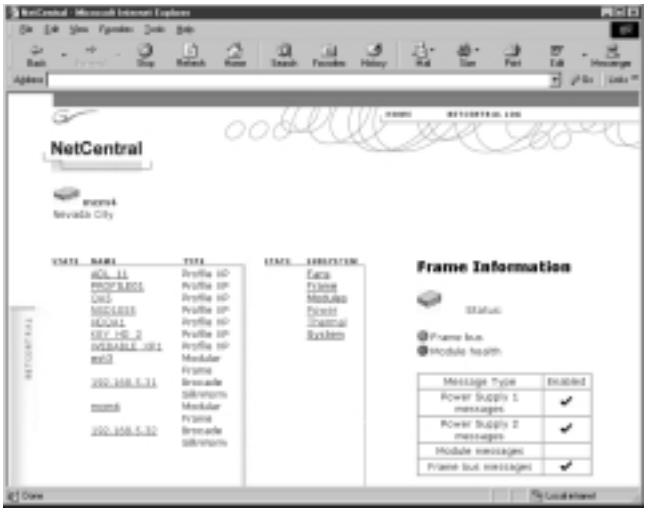
ENC-XY
Advanced Universal XY Programmable Control Panel

ENC-PMB
Eight Destination Paging Control Panel

NETCENTRAL™ REMOTE MONITORING SOFTWARE

FEATURES

- Worldwide Internet monitoring via eNetCentral
- Continuous status monitoring of all major subsystems
- Alerts operators to potential problems before they become critical
- Monitors all hardware modules with "heartbeat" checkup
- Local version standard on all Profile® XPs (NetCentral Lite)
- Uses standard SNMP protocols
- Selectable action upon alarms and warnings including email and paging
- Lowers total cost of ownership by reducing maintenance costs
- Monitors Profile XP Media Platforms, Brocade Fibre Channel switches, 2000 Series and 8900 Series modular products
- NetCentral II framework permits device plug-ins to be added in the field to allow new classes of devices to be monitored
- Easy to use interface
- Predictive failure analysis for storage products recommends drive replacement before failure
- Automatically discovers new devices as you expand your facility



NetCentral II includes the powerful eNetCentral feature which allows Internet access from anywhere in the world.

ADDRESSING THE TOTAL COST OF OWNERSHIP

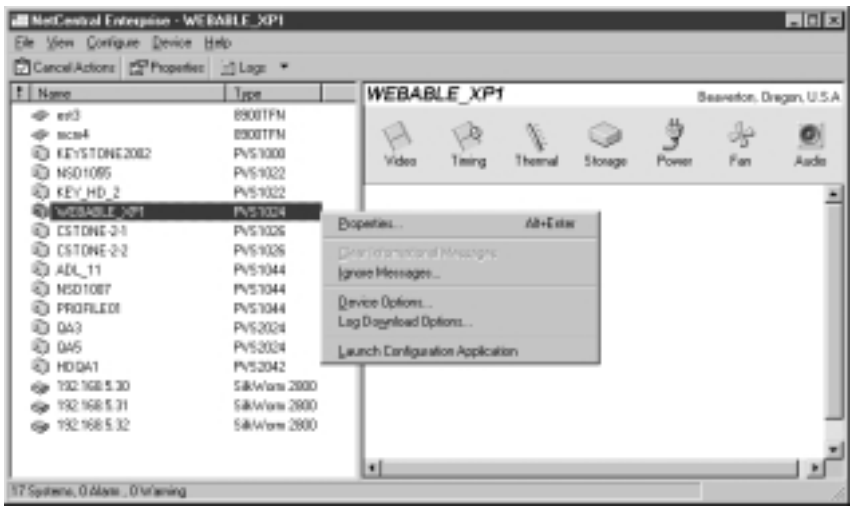
Building on the widely successful NetCentral™ product, the Grass Valley Group has taken another big step in lowering the total cost of ownership with the new NetCentral II Remote Monitoring system. NetCentral II provides facility engineers the ability to monitor the status and condition of many Grass Valley products from one central location, no matter where in the world they may be located.

NETCENTRAL II AND NETCENTRAL LITE

NetCentral Lite is a standard feature of all Profile XP systems. It offers the basic functionality of NetCentral II, but only runs on the XP's Windows NT system and only monitors itself. A software upgrade to the complete NetCentral II manager provides the ability to monitor all Profiles XPs, 8900 modular products and more from a remote NT workstation.

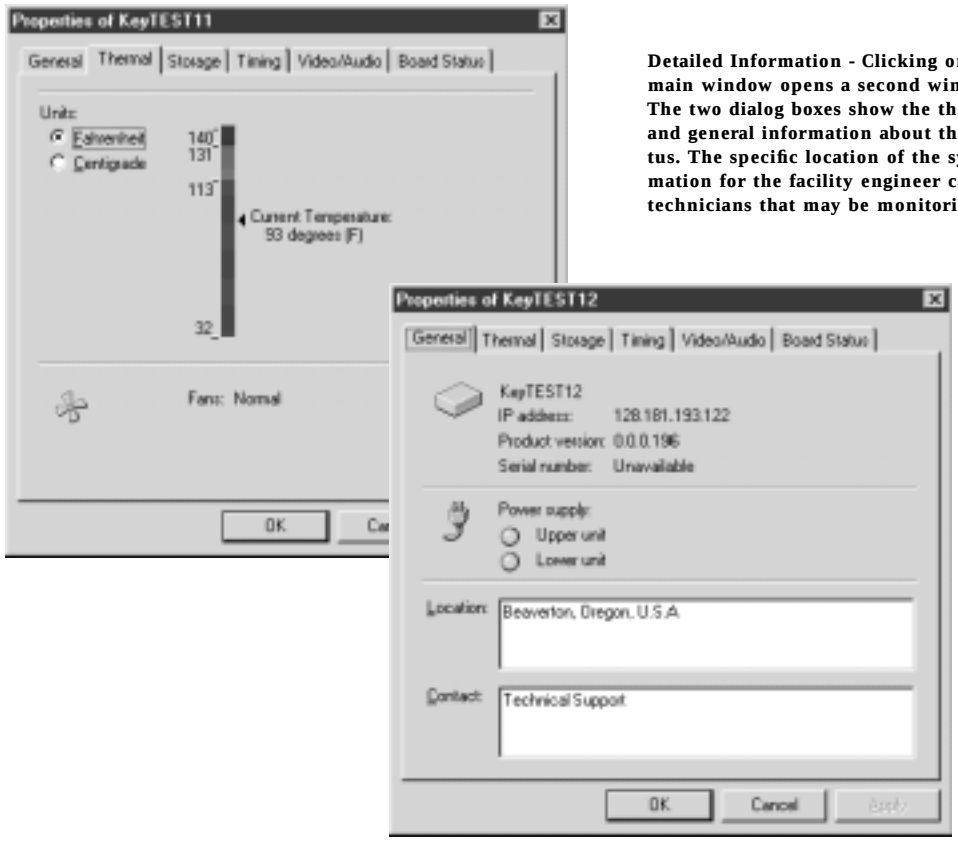
NetCentral II provides a completely new framework assuring that NetCentral II will continue to grow and support an increasingly wide variety of Grass Valley Group products. Couple that with enhanced reporting capabilities, the ability to launch configuration interfaces from within NetCentral II's Manager, and a vast array of new configuration options, like multiple e-mail schedules, and you have a powerful system that can and will grow to meet your ever-changing needs for years.

NetCentral II consists of a "manager" and an "agent". The agent runs on the monitored product while the manager runs on a Windows NT workstation. From any workstation, you can monitor the condition of any supported product on the network. NetCentral II categorizes status information detected on the system, depending on its severity, as either an alarm, a warning or simply information.



Remote Monitoring - NetCentral II main screen displays all of the SNMP compatible systems being monitored as well as the sub-systems of the selected unit. This panel shows any abnormal status information that may be detected.

NETCENTRAL™ REMOTE MONITORING SOFTWARE



Detailed Information - Clicking on any sub-system on the manager's main window opens a second window providing detailed information. The two dialog boxes show the thermal characteristics of the system and general information about the system such as power supply status. The specific location of the system as well as local contact information for the facility engineer can also be entered for maintenance technicians that may be monitoring the system remotely.

INTRODUCING ENETCENTRAL

Now, thanks to the power of Internet technologies like XML, XSL and personal Web servers, NetCentral II provides instant access to your system from anywhere in the world using standard Web browsers.

PREDICTING FAILURES BEFORE THEY OCCUR

With NetCentral II, the power that modern disk systems have to report potential failures via statistical analysis, can be put directly in the hands of every technician. No more waiting for a drive to fail. NetCentral II can now tell you to replace a drive when the system thinks it might fail. Giving you the confidence to never worry again about disk failures and potential down time.

ALARMS

Whenever a failure that threatens reliable on-air operation occurs, the affected sub-system of the monitored product sends messages to the NetCentral II manager using industry standard SNMP protocol. When an alarm is generated, NetCentral II can be programmed to take specific actions such as to send an e-mail to an internet mail server, call a technician via pager, or run a user specified program. E-mail and paging require a customer supplied Internet mail server.

WARNINGS

A warning message is a message that does not require immediate action but informs the user that some preventative action may be required. For instance, the system's internal temperature may be rising due to a fan failure or poor cooling in the equipment racks. Alternatively, the disk array may report excessive retries on data retrieval. In these cases, although the system is still functional, it is not operating at its optimal performance level. NetCentral II alerts maintenance staff to investigate such warnings.

NETCENTRAL™ REMOTE MONITORING SOFTWARE

Error Notification - In the event of an error, several actions can be selected. The user specifies these actions in the configuration screen. The system can beep, play an audio file, run a user defined program, and the most common, send an e-mail or ring a pager. E-mail systems that provide rule-based processing of incoming mail allow messages to be directed into separate folders for each of a facilities' servers. This provides a convenient way to maintain maintenance records for each of the servers in a facility or to maintain records in a central remote location.

INFORMATIONAL MESSAGES

Provides general information about the monitored device such as configuration, software version levels, etc.

Web browser compatible system logs are available to NetCentral and can be viewed from a remote location. These logs can be saved to a file and sent to the Grass Valley Support Center for analysis by a Grass Valley Group support specialist.

Users are provided access to set, reset, or ignore warning and alarm conditions in accordance with local conditions and preferences. The NetCentral II manager can also use GPI outputs on devices like the Profile XP Media Platfrom. These are triggered in event of warning or alarms on the system. In addition, it is possible to localize operator messages displayed by NetCentral II for local languages. Contact your local Grass Valley representative for further information.

NETCENTRAL II MONITOR

The NetCentral II monitor runs on the manager workstation as a small icon in the system tray. A revolving indicator shows that NetCentral II is on watch actively monitoring the status and performance of the system. When the icon monitor is green, operation is normal. However, in the event of a warning or fault, this changes to red and restores the application to a full screen view alerting the operator to the problem that was detected.

SPECIFICATIONS

PROFILE REQUIREMENTS
- Any PVS1000 or PVS2000 system
- Remote monitoring requires network connection and is only available with the full NetCentral II product. If connection to a mail server is desired, users should employ a gateway to firewall the control network from other IT network traffic.

2000 SERIES REQUIREMENTS
- 2000NET module

8900 SERIES REQUIREMENTS
- 8900NET module

NETCENTRAL ACTIONS
- Separate settings available for alarms and warnings

– Beep
– Trigger a GPI
– E-mail
– Play audio file (.wav)
– Run program (.exe)

NETCENTRAL LITE
- Standard on all Profile XP Systems
- Includes basic functionality as described

ENETCENTRAL REQUIREMENTS
- 450MHz PC with 128 Mb RAM
- Windows NT, 2000
- Microsoft IIS or PWS (personal web server)

PROFILE XP MONITOR AREAS
- General: name, IP Address, Software version, Power Supply status
- Video/Audio: for each input – sync/async, video present, VITC present, embedded audio present
- Format/Reference: NTSC/PAL, VITC/LTC present, Genlock
- Thermal: temperature gauge, current, warning level, critical level
- Storage System: RAID status, capacity and space remaining
- Board Status: name, location, version, status
- Fans: status

AVAILABLE LOGS
- Engineering Log: displays boot-up information, logs all system activity
- NetCentral Log: messages to/from NetCentral Client
- Port TimeLine Control: activity on each RS-422 port
- Transfer Log: network activity
- VDRPanel: activity on each channel
- Profile Protocol Log: activity via Profile protocol

ORDERING INFORMATION

NETC2MGR
NetCentral II Manager, Single license, NetCentral II manager for remote monitoring

NETC2MGR-SU
NetCentral II Software, Software update annual, Update Contract, service contract for NetCentral II, single license

NETC2MGR-UP
NetCentral to NetCentral II Upgrade Upgrade to NetCentral II, for current users, per manager

NETC2AGNT-XP
Profile XP Agent, Single license, NetCentral II agent for Profile XP

8900NET
Modular Frame Network, Single license per frame, Interface Card

NEW PRODUCTS
Check http://www.grassvalley-group.com/products/netcentral/ for up-to-date information regarding the availability of SNMP agents for other Grass Valley Group products. SNMP agents must be licensed for each Grass Valley Group product being monitored.

CONCERTO™ SERIES COMPACT ROUTING MATRIX

FEATURES

- Compact, space-saving 7 RU frame
- Robust, efficient design with single-module linear expansion in 32x32 increments up to 128x128
- Optional time division multiplexing (TDM) expander for multi-frame expansion of analog and digital audio, and data signals
- Unique signal busing technology for mixing and matching signal types in the same frame, including analog audio and video, SD and HD digital video, AES/EBU digital audio, and port data
- Front-accessible boards, modules, and fans for quick, hot-swappable service and expansion
- Integrated A/D and D/A conversion for audio with selectable processing for mono mix, invert, swap, and dual left/right
- Sophisticated output monitoring for quality control and signal integrity analysis
- NetCentral™ software compatibility for comprehensive SNMP monitoring and diagnostics
- Control options including Encore scalable facility control system, Series 7000 control system, stand-alone browser based control, and other third-party control systems

The Concerto Series compact routing matrix offers the flexibility, intelligent control, and linear scalability necessary for a variety of routing and monitoring applications. This powerful, flexible matrix frame lets users mix analog and digital formats within a single frame with unparalleled flexibility. It accommodates up to 128 inputs and outputs in a compact, 7 RU frame, which means it works as well in space-limited applications such as mobile trucks as it does as a central routing switcher in a broadcast or post-production facility. With optional 48 VDC external power, it's easy to integrate Concerto Series matrices into telecommunications and cable head-end facilities.

MIX AND MATCH FORMATS IN THE SAME FRAME

Using a series of 32x32 modules, the Concerto Series matrix lets users mix and match supported signal types in the same frame — including analog audio and video, standard-definition (SD) and high-definition (HD) digital video, AES/EBU digital audio, time code, and port data for machine control. The module slots in the frame are not format-sensitive, and the appropriate rear panels can be easily removed or reconfigured in the field to accommodate input, output, and level changes. This design makes the Concerto Series one of the easiest routing systems to expand or reconfigure and provides tremendous flexibility when laying out a multi-format system.

The Concerto Series provides two independent internal sync reference lines for video. This eliminates the need for multiple frames in multi-standard facilities. Users can, for example, assign PAL or NTSC sync to individual, user-selectable outputs.

CONCERTO™ SERIES COMPACT ROUTING MATRIX

FLEXIBLE DESIGN AND LINEAR SCALABILITY TO 128x128

The unique busing and I/O architecture of the Concerto Series makes it the perfect tool for bridging both analog and digital environments. The same frame accommodates both analog and digital video and audio signals simultaneously. As an added bonus, each audio module includes built-in signal processing for A/D and D/A conversion and user-selectable processing of each signal for summing, swapping, and inverting. For facilities transitioning from analog to digital, this capability simplifies wiring and reduces the requirement for dedicated audio conversion equipment.

Expansion of a Concerto Series matrix is easy and affordable. Unlike most systems that require dedicated input, output, and crosspoint modules for expansion, it takes only a single card to change a 32x32 system to a 64x64 configuration, and only four cards to configure a full 128x128 Concerto Series matrix. And, with a separate rear connector module that has no active components, pre-wiring for facility expansion can be done cost effectively.

TDM EXPANSION FOR MULTI-FRAME SYSTEMS OVER 128x128

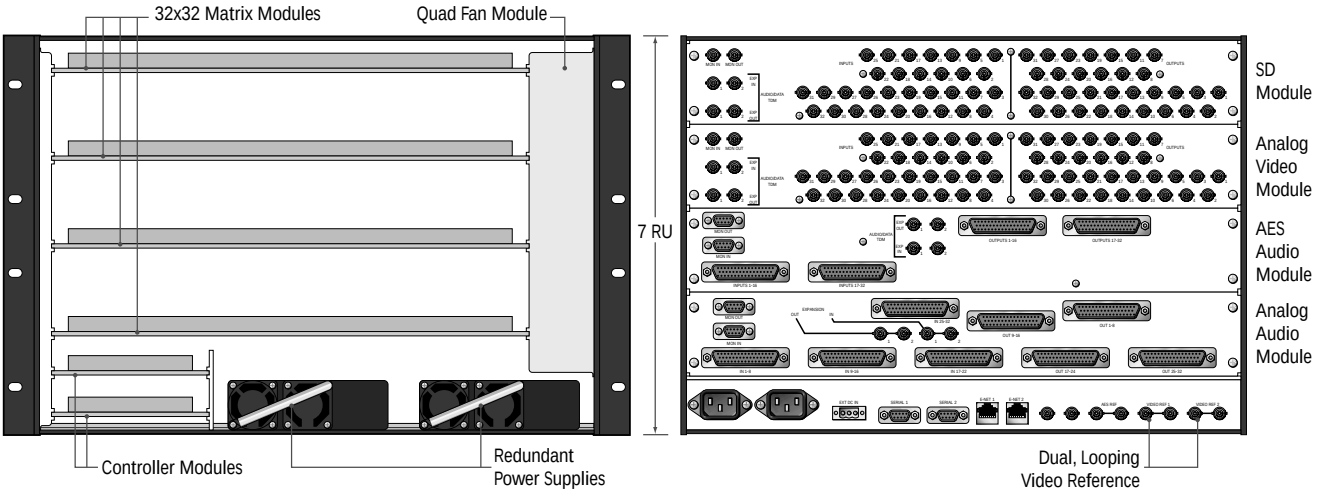
The optional Time Division Multiplexed (TDM) expander allows for multi-frame expansion beyond 128x128 for analog and digital audio, time code and machine control data. This straightforward industry-standard technique simplifies cabling between frames and eliminates the need for secondary switches and distribution amplifiers.

DESIGNED FOR DEMANDING ENVIRONMENTS

The Concerto Series matrix can be configured with complete control and power redundancy for mission critical applications. The Concerto Series frame can also be configured for operation from an external 48 VDC power source using dedicated connections on the rear of the chassis. The Concerto Series matrix conforms to safety and emission standards such as UL, FCC, and CE to ensure acceptance in even the most demanding environments. Its integrated multi-fan, forced-air cooling ensures optimal performance and reliability without requiring external fan units. The Concerto Series frame features alarm-relay outputs to alert facilities personnel of system anomalies.

COMPATIBLE WITH MANY CONTROL SYSTEMS

Concerto Series matrices can be controlled by the Grass Valley™ Encore™ scalable facility control system, the widely used Series 7000 control system, and many other third-party control and automation systems. It is also compatible with the Grass Valley Group's NetCentral™ software for Simple Network Management Protocol (SNMP)-based monitoring and diagnostics.



Flexible Design and Linear Scalability - The unique I/O architecture of the Concerto Series makes it easy to mix analog and digital formats in the same frame. Input, output and crosspoint functions are on a single module for easy system expansion.

CONCERTO™ SERIES COMPACT ROUTING MATRIX

HOT SWAPPABLE MODULES WITH QC MONITORING

All processing modules are front-removable and hot-swappable for safe, on-air maintenance. In addition, all video and audio modules have monitor outputs for quality assurance and signal integrity analysis equipment.

SERIAL DIGITAL VIDEO MODULE (SMPTE 259M & EBU TECH 3267)

The SD video module can be used in either re-clock or bypass mode. The re-clocked bit rates include 143 Mb/s, 177 Mb/s, 270 Mb/s, and 360 Mb/s. It also accommodates multi-sync reference selection on each output.

HIGH DEFINITION VIDEO MODULE (SMPTE 292M)

The HD video module provides excellent HD switching performance. It re-clocks to the industry-standard bit rate of 1.485 Gb/s (1080i or 720p) and bypass switches all non-standard bit rates from 30 Mb/s to 1.5 Gb/s. It also provides sophisticated output monitoring for QC requirements.

ANALOG VIDEO MODULE

The analog video module features terminating differential inputs and outputs, DC restore capability, and wideband signal performance for switching computer graphic signals.

DIGITAL AUDIO MODULE

The digital audio module not only complies with AES and EBU standards for digital audio, it includes more advanced features such as synchronous 48 kHz AES/EBU switching, attributes control (as described in the stereo analog audio section above), and "soft" or "V-fade" switching to eliminate pops and clicks that can be introduced by signal level differences. If the audio signal being switched does not conform to the required 48 kHz-sampling rate, the module will convert the signal using high-quality add/drop sampling technology so that the signal can be switched synchronously. When used with the analog audio module, the digital audio module can be used for digital to analog conversion, eliminating the need for dedicated tie-lines or additional conversion equipment.

STEREO ANALOG AUDIO OR DUAL MONO AUDIO MODULE

This module provides dual mono or true stereo audio processing with differential, high-impedance bridging inputs and low-impedance outputs. It also includes user-selectable A/D conversion, so any source that is processed through a stereo analog audio module can be switched to a digital output without the use of tie lines or external A/D conversion products. In addition, through the Encore facility control system, users can process the audio attributes on the output to swap channels, invert either channel, sum the two channels, or duplicate a channel to feed mono input to both channels.

DATA AND TIME CODE MODULE

The data module has been designed to provide precise switching of machine control data while at the same time providing a clean, reliable platform for processing and switching SMPTE time code streams. This sophisticated processing includes port-oriented, bi-directional signal processing that complies with ANSI/SMPTE 207M standards and dynamic pin-configuration modes for master vs. slave control (automatic switching of both controlling and controlled devices).

ORDERING INFORMATION

For ordering information, see order guide 2WW-9418

7500 WB WIDEBAND ROUTING MATRIX FRAMES

FEATURES

- Compact space and power saving frames for switching digital video and data signals from 10 Mb/s to 1.5 Gb/s
- Video and data signals includes: SMPTE 259M, 292M, 310M
- Two vertical references which support 24 Hz, 50 Hz, 59.94 Hz, 60 Hz
- Modules include:
  - WB input and output modules, 10 Mb/s to 1.5 Gb/s with selectable reclocking at 143, 177, 270, 360, 540 Mb/s and 1.485 Gb/s
  - SD input and output modules, 10 Mb/s to 360 Mb/s with data reclocking at 143, 177, 270 and 360 Mb/s
  - Universal crosspoint module, 10 Mb/s to 1.5 Gb/s
- Two frame sizes available: 13RU 128x128 and 25RU 256x256
- Module granularity of 32 inputs/32 outputs
- Auto ranging internal AC main power supplies
- 48 VDC operation
- Scalable, step-by-step expansion utilizing variable frame sizes
- Front removable/hot pluggable modules for safe "on-air" maintenance
- No rear mounted boards
- "VOM" Video Output Monitor for monitoring virtual mapped SD and/or HD sections (Virtual Matrices)
- Optional redundant internal matrix controllers and power supplies

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The 7500 Wideband Routing Switcher is a no-compromise, future proof solution that is ideal for all broadcasters, production facilities, post production facilities, telecommunications facilities, and satellite service providers that need to route any digital signal from 10 Mb/s to 1.5 Gb/s. Both HD and SD signals can be routed in the same frame with our Extended Wide Band module set simultaneously – simplifying the transition to high definition formats and preserving your investment.

HD, SD AND DATA – ALL IN THE SAME FRAME

The 7500 WB frames accept different data rate input/output module sets using the same universal crosspoint module. For facilities that require a mix of both SD and HD signals, this provides a cost-effective migration path and eliminates re-cabling and system down-time. Using a combination of Wideband and Standard Definition input/output module sets eliminates the need for a dedicated high definition router and provides cost-effective Serial Digital routing.

The WB input/output module set offers:

- Input cable EQ all the way up to 1.5 Gb/s
- Data reclocking @ 143/177/270/360/540 Mb/s and 1.485 Gb/s
- Bypass operation for signals at non-traditional video rates

These modules offer future proof capability, particularly where SD and HD video is required. There is no need to swap out the modules when new standards become prevalent within the facility.

The SD input/output module set offers:

- Input cable EQ up to 360 Mb/s
- Data reclocking @ 143/177/270/360 Mb/s
- Bypass operation for signals at non-traditional video rates

7500 WB WIDEBAND ROUTING MATRIX FRAMES

These modules offer extremely cost effective switching of today's SD video signals, within the WB matrix frame. As the need for HD video switching increases, simply add WB modules or replace existing SD only modules with WB modules.

DESIGNED FOR SIGNAL INTEGRITY

All 7500 WB matrix frames offer unrestricted, guaranteed, non-blocking, deterministic switching through a flat crosspoint matrix. This ensures that all input and output destinations are always available.

System cable length is never a problem since the cable "EQ" Equalization compensates for amplitude losses within the input cables. Automatic amplitude loss compensation exceeds 300 meters of coaxial cable at SD rates and over 150 meters at HD rates. The system offers selectable, multi-rate data reclocking at 143/177/270/360/540/1.485 for elimination of jitter associated with long cable runs. In addition, there is a standard "Bypass" mode to enable routing of signals occurring at other than traditional video/data rates.

The dual vertical interval reference inputs enable synchronous switches at 24 Hz, 50 Hz, 59.94 Hz and 60 Hz within the matrix frame. These reference signals are either analog color black or mono sync. As future standards are defined, HD reference signals can be used simultaneously with SD reference signals within the same frame. Destinations are configured to switch at one of the two reference inputs, allowing PAL, NTSC and HD synchronous switching within the frame.

The "VOM" Video output module provides four independent destination monitors, enabling destination monitoring of SD/HD virtual matrices within the frame. In addition to traditional destination, monitoring it offers source monitoring and an industry unique diagnostic functionality that includes "CRC" Cyclic Redundancy Checking for bit errors.

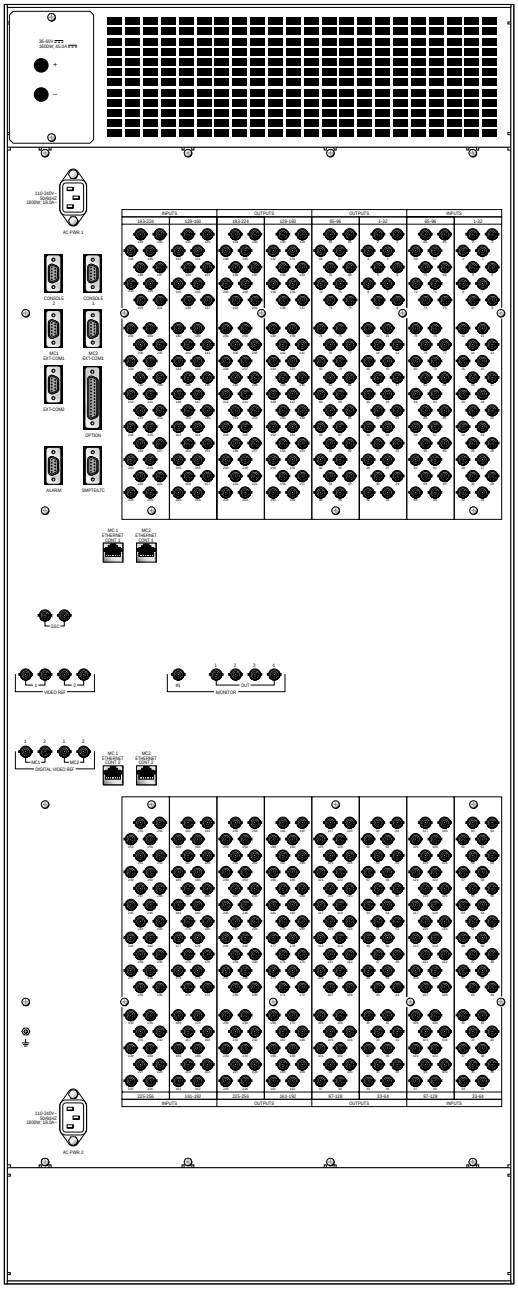
ROBUST AC/DC POWER SUPPLIES

All 7500 WB series matrix frames include internal auto ranging AC main power supplies with the option of a fully redundant load sharing supply. A standard 48 VDC battery "float" connection is supplied on each frame. This connection simplifies power requirements for facilities standardizing on 48 VDC power and provides a simple, low-cost battery back-up UPS system for facilities standardizing on AC power.

The 7500 WB 128x128 Series matrix frame requires forced air cooling either within the equipment rack or by optional forced air fan assemblies, SMS-FAN assemblies. The 7500 WB 256x256 Series matrix frame contains internal forced air cooling, with thermal control circuitry to vary the cooling efficiency of the fan. Like all system modules, the fan and filter assemblies are easily serviced from the front of the equipment rack.

FRONT REMOVABLE/HOT PLUGGABLE MODULES

All Series 7000/7500 matrix frames offer front removable/hot pluggable modules with rear mounted motherboard construction. This design improves the integrity of the system by reducing internal cabling and by eliminating mid plane motherboards with rear mounted active components. This greatly reduces system down time, simplifies cable connections to the frames (no need to route cables to enable access to rear mounted components), increases ease of serviceability, simplifies system expansion, and increases the reliability of the system.



7500 WB 256x256 Rear Connectors

ORDERING INFORMATION

For specifications and ordering information, see order guide 2WW-7401-5.

7500 NB NARROW BAND MATRIX FRAMES

FEATURES

- Compact space and power saving frames for switching digital signals up to 50 Mb/s
- Multiple reference inputs include: video analog color black and 48 kHz audio
- Modules include:
  - Synchronous AES/EBU 48 kHz digital audio input and output modules
  - Asynchronous data input and output modules for AES/EBU digital audio/MPEG video and SMPTE 310 signals
  - Universal crosspoint module
  - Dual "AOM" Audio Output Monitors standard w/ synchronous output modules
- Module granularity of 64 inputs/64 outputs
- Auto ranging internal AC mains power supplies
- 48 VDC operation
- Two frame styles available:
  - 75 Ω unbalanced BNC
  - 110 Ω balanced high-density 50-pin D
- Scalable, step-by-step expansion utilizing variable frame sizes
  - 12RU 256x256
  - 24RU 512x512
  - 36RU 768x512
  - 48RU 1024x512
- Front removable/hot pluggable modules for safe "on-air" maintenance
- Each matrix frame comes standard with a controller module and power supply
- Optional fully redundant internal controllers and power supplies

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The 7500 NB series matrix frames are the perfect low-power/low-cost solution for routing low-bandwidth signals through your facility. Designed for synchronous or asynchronous digital audio routing, the 7500 NB works as a companion to all other 7000/7500 Series matrix frames. The 7500 NB can also route serial digital data up to 50 Mb/s, making it ideal for LTC linear time code, SMPTE 310 (ATSC 19 Mb data stream), MPEG, and other data routing. This series also works well in telecommunication and cable headend facilities that standardize on 48 VDC battery power.

BNC OR D CONNECTOR FRAMES FOR EASY INTEGRATION

The 7500 NB series matrix frames are available with unbalanced BNC connectors for quick and easy 75 Ω coaxial cable connections or the traditional 110 Ω balanced outputs from high-density 50-pin D connectors, which enable simplified cabling to patch panels.

PROFESSIONAL MULTICHANNEL DIGITAL AUDIO ROUTING

These matrix frames are ideal for broadcasters and audio postproduction facilities that need to route multiple audio signals. They allow for routing of synchronous 48 kHz AES/EBU digital audio, Dolby® Digital, Dolby E, Surround Sound, 5.1, AC3, and asynchronous data rate audio signals. This is extremely useful in postproduction facilities for music videos, broadcast facilities that are implementing audio processing for DTV/ATSC data streams and high audio usage applications.

As an audio router, this frame uses both video and audio reference "switch point" signals. Video reference is analog color black either NTSC or PAL. The audio reference is a 48 kHz word clock or 48 kHz AES/EBU audio signal. 625 line systems synchronously switch audio at the video vertical reference. 525 line applications switch the audio (depending on field alignment) up to a few micro seconds after the vertical reference.

7500 NB NARROW BAND MATRIX FRAMES

SYNCHRONOUS MODULES FOR LIVE DIGITAL AUDIO PRODUCTIONS

In live productions, where audio timing is critical, synchronous modules eliminate the pops and other artifacts that result from AES mid-frame switching. The synchronous input audio module frame aligns the AES/EBU data stream and strips off the block data (to be re-inserted later by the output module). The crosspoint module switches at the AES frame boundary to make a seamless, synchronous switch to another AES data stream. The output module rebuilds the AES data stream and outputs the AES signal, complete with necessary block data. Additionally, the synchronous output module offers enhanced audio processing including a soft switch capability (dunking) that aligns the audio levels at the switch point, and output processing of the AES stream including summing, swapping and inversion. Each synchronous audio output module provides two audio output monitors. These monitors allow destination monitoring without disturbing the current source/destination selection. With the maximum of four output modules per frame, eight independent audio outputs can be monitored simultaneously.

DATA MODULES FOR POST-PRODUCTION DIGITAL AUDIO OR DATA SWITCHING

For routing of data or digital audio in a post-production environment, the asynchronous data input and output modules offer a cost-effective routing solution. They can route any serial digital data signal up to 50 Mb/s, making them ideal for LTC linear time code, MPEG data streams including SMPTE 310 (ATSC 19 Mb data stream), muti-rate digital audio streams at 31, 44 and 96 kHz and other data routing.

ROBUST AC/DC POWER SUPPLIES

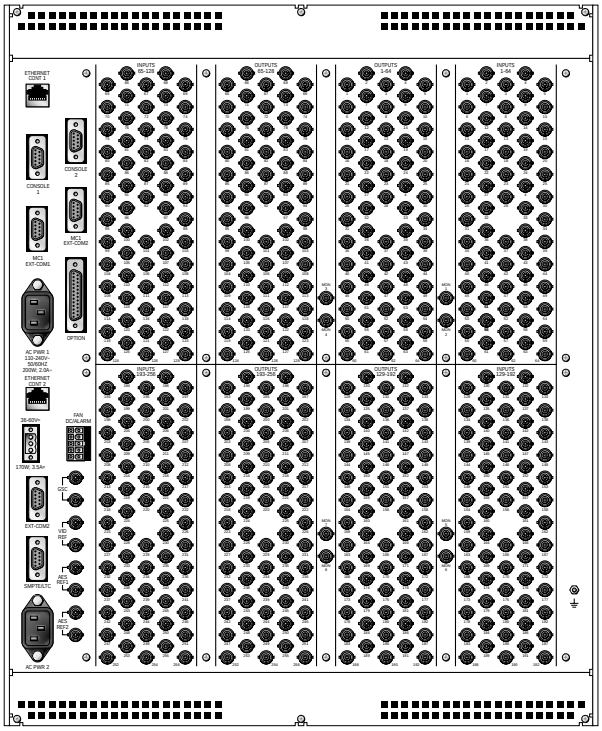
All 7500 NB series matrix frames include an internal auto ranging industry standard AC main power supply with the option of a fully redundant load sharing supply. A standard 48 VDC battery “float” connection is supplied on each frame. This connection simplifies power requirements for facilities standardizing on 48 VDC power and provides a simple, low-cost battery back-up UPS system for facilities standardizing on AC power. Maximum power requirement for a fully populated 256x256 frame is only 120 watts.

FRONT REMOVABLE/ HOT PLUGGABLE MODULES

All Series 7000/7500 matrix frames offer front removable/hot pluggable modules with rear mounted motherboard construction. This design improves the integrity of the system by reducing internal cabling and by eliminating mid plane motherboards with rear mounted active components. This greatly reduces system down time, simplifies cable connections to the frames (no need to route cables to enable access to rear mounted components), increases ease of serviceability, simplifies system expansion, and increases the reliability of the system.

SIMPLE FRAME EXPANSION

System expansion is easily accomplished in the field simply by mounting another 7500 NB matrix frame directly below the current frame and plugging in the expansion module set.



7500 NB Rear Connectors (BNC version shown)

ORDERING INFORMATION

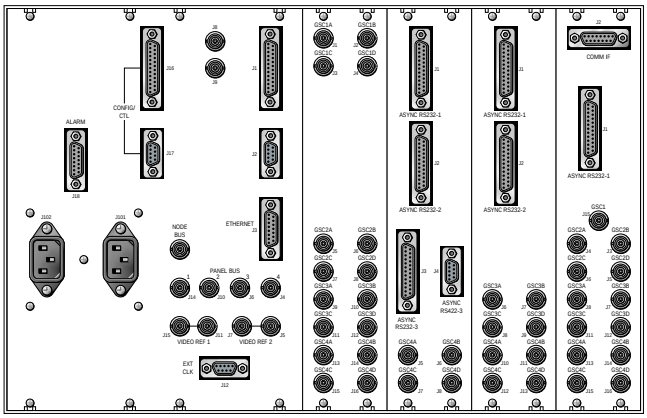
For specifications and ordering information, see order guide 2WW-7401-5.

SERIES 7000 CONTROL SYSTEM

FEATURES

- Robust and flexible enough to support 1024 sources, 1024 destinations and 32 control levels
- Fast "Booting" real-time OS running on a dedicated "MCPU" Master Central Processing Unit
- RISC (reduced instruction set) processing and distributed processor architecture for increased speed and redundancy
- Front removable/hot pluggable modules for safe "on-air" maintenance
- Extensive system module redundancy options include
  - MCPU
  - Communication Interface
  - Power supply
- "GUI" Graphical User Interface running on standard Windows® 95/98/NT via Ethernet
- Multi-session "VSD" Visual Status Display running on standard Windows 95/98/NT via Ethernet
- Named-based configuration of control panels, sources, destinations and matrix frames
- Robust system configuration capabilities eliminate down-time while making on-line changes and provide:
  - Extensive on-line control
  - Complete off-line configuration capabilities
  - Tie-line management
  - Virtual matrix mapping
- Open, published control interfaces supported by many third-party control systems
  - Automation, Tally
  - Ethernet 10Base-T and 10Base2
  - RS422 and RS232
- 6RU Frames with extensive I/O capabilities
  - Four coaxial control panel busses support up to a total of 64 control panels
  - Dual video references
  - Synchronization clock input
  - Ethernet interface, transceiver cable MAU
  - Node bus matrix control
  - Dedicated Alarm port
  - Diagnostic port
  - Extensive application specific control panels available

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.



Series 7000/7500 Master Control Connections (shown with a variety of communications interface modules).

The Series 7000 control system provides frame-accurate switching with up to 32 levels of control, ensuring responsive and predictable performance. This system has been field-proven in some of the most demanding facilities in the world, with installed systems up to 1024x1024. Extensive redundancy options minimize down-time for mission critical applications.

POWERFUL TIE-LINE MANAGEMENT

Tie Line Management allows for transparent routing of signals between matrices. Tie-lines make all of the sources on a remote routing matrix available to users on a local matrix through dedicated interconnections. When a user requests a source that is not found on the local matrix, the request is automatically assigned to a tie-line and acquired from the remote matrix. Selectable tie-line sharing allows multiple users to share the same tie-line when requesting the same source on the remote matrix, minimizing the number of dedicated interconnections. Placing conversion equipment on tie-lines between dissimilar matrices eliminates the need for a dedicated converter for each source.

VIRTUAL MATRIX MAPPING

Virtual matrix mapping maximizes crosspoint utilization by subdividing a physical crosspoint matrix into multiple virtual matrices – eliminating the need for dedicated crosspoint modules for different types of signals. In addition, crosspoints can be selectively assigned to ensure that input signals are only routed to appropriate output destinations. These virtual matrices can be tied to a single control level for simultaneous switching (such as audio/video, video/key or R/G/B). Virtual matrix mapping also makes possible logical groupings of device connections, simplifying system cabling. System re-cabling is minimized when equipment is upgraded since changing the type or format of equipment on an input or output requires only a modification of the virtual matrix table to assign signals to the correct matrix.

SERIES 7000 CONTROL PANELS

FEATURES

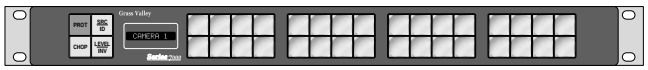
- Programmable, eight character names for sources, destinations, salvos, levels and panels
- Relegendable buttons
- Chop Function for automatically switching between sources for quality comparisons
- Protect Function to protect destinations from intervention by other users
- Simple 75 Ω coaxial "T" connection for up to 16 panels per bus

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

Series 7000 control panels are completely programmable using our PC GUI interface and can be configured to meet almost any requirement (even allowing buttons to be completely disabled). Panels store their personality programs internally in non-volatile memory, allowing them to re-boot extremely quickly after a power outage or to be relocated without reconfiguring. Panels connect in series with a BNC-T connector which allows panels to be removed and relocated without affecting other panels downstream.

Most panels feature PROT and CHOP functions. Protect (PROT) prevents other devices from changing the selected source to destination connection. CHOP allows two sources to be rapidly switched on one destination, which is useful for signal timing, camera matching, etc.

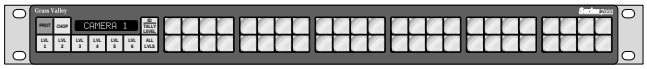
The panels feature easy to use, high quality buttons with positive feedback to indicate the switch has been pressed. Removable lens chips allow button source/destination names to be changed as required. Displays are bright and easy to read in a variety of light levels and viewing angles.



SMS-P32 Control Panel

32 BUTTON-PER-SOURCE CONTROL PANEL

- Selects 1 of 32 sources to a single destination
- User-programmed pushbuttons so any button can select any source in the system
- Buttons can be programmed to select levels for use in video and audio breakaway operations
- Excellent for use at tape/disk machines for fast immediate access to source selection



SMS-P48 Control Panel

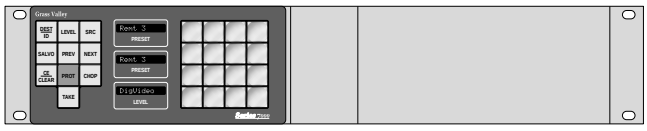
48 BUTTON-PER-SOURCE CONTROL PANEL

- Selects any of 48 sources to a single destination
- Allows instant access to any of six independent levels or all levels at once
- User-programmed pushbuttons allow any button to select any source in the system
- Ideal for mobile installations

SMS-SCP Control Panel

SIMPLE CONTROL PANEL

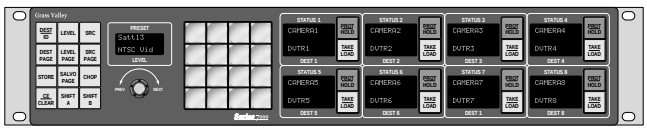
- Eight user defined function keys support any combination of source, destination, Salvo, and/or level operations
- 24 button alphanumeric keypad provides access to many source and destination names
- Excellent for use where customized operation is required to provide basic source selection combined with custom features such as a choice of destinations, simple level selection or occasional Salvo usage



SMS-UCP-XY Control Panel (shown with mounting kit)

UNIVERSAL XY CONTROL PANEL

- Can be programmed to control a single destination or any combination of destinations
- User-programmable keypad allows you to preset sources for subsequent takes
- Separate displays for preset, status and level

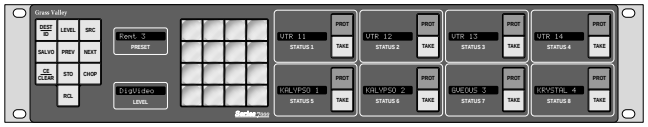


SMS-EDP Control Panel

EIGHT DESTINATION PAGING CONTROL PANEL

- Ultimate in power and versatility
- Personalized, user-defined configurations
- Simultaneous control and display of any 8 sources and destinations
- 2 shift buttons provide expanded access to 48 prefixes, 48 suffixes and 48 pages
- Scroll through pages of sources, destinations, Salvos, and levels
- Password protection

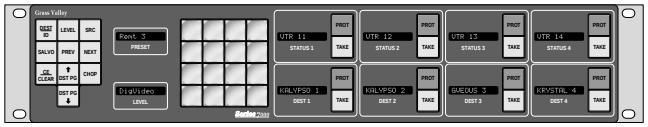
SERIES 7000/7500 CONTROL PANELS



SMS-MB8 Control Panel

MULTIBUS 8 CONTROL PANEL

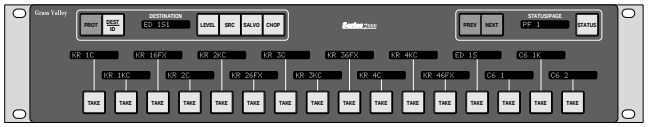
- Eight separate destinations can be controlled and displayed; each with independent take and protect buttons and dedicated status windows
- Panel can be programmed to control only 8 specific destinations or programmed to allow you to change destinations as required



SMS-MB4 Control Panel

MULTIBUS 4 CONTROL PANEL

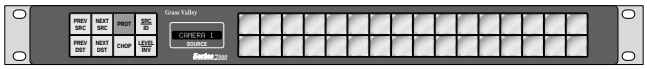
- Simultaneous control and display of any 4 sources and destinations
- Allows assigned destinations to be changed quickly to match changing production needs



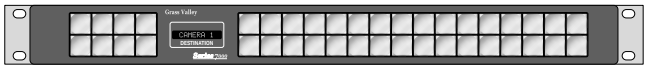
SMS-SDP Control Panel

SINGLE DESTINATION PAGING CONTROL PANEL

- 16 separate full 8 character displays give instant visual indication
- Ability to scroll through pages of Sources, Salvos, and levels



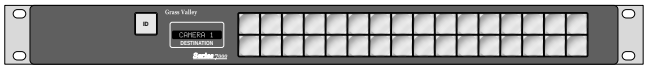
SMS-PXS Source Control Panel



SMS-PXD Destination Control Panel

PROGRAMMABLE XY CONTROL PANEL

- Control panel with 32 pushbuttons programmable to select a Source, a Destination, or a Salvo
- Buttons can be programmed to select levels when in the LEVEL mode. This sets up the level(s) to be switched during subsequent TAKE(s)
- Excellent for use with one or more tape machines. Especially good for dubbing, as multiple destinations (machines) can be grouped together so that the selected source is switched to the grouped destinations with one button press



SMS-PXYE Control Panel

EXPANSION PANEL FOR PROGRAMMABLE XY CONTROL PANELS

- Expansion control panel with 32 pushbuttons used to add more selections to SMS-PXY
- Each button can be programmed to select a source, a destination, or a Salvo

ORDERING INFORMATION

SMS-P32
32 button per source control panel.

SMS-P48
48 button per source control panel.

SMS-SCP
Simple control panel.

SMS-UCP-XY
Universal XY control panel.

SMS-RMK
Rackmount kit for SMS-UCP-XY.

SMS-EDP
Eight destination paging control panel.

SMS-MB8
Multibus 8 control panel.

SMS-MB4
Multibus 4 control panel.

SMS-SDP
Single destination paging control panel.

SMS-PXY
Programmable XY source and destination control panel set.

SMS-PXS
Programmable XY source control panel.

SMS-PXD
Programmable XY destination control panel.

SMS-PXYE
Expansion control panel for SMS-PXS or SMS-PXD.

SERIES 7000 CLASSIC ROUTING MATRIX FRAMES

FEATURES

- Audio, video and data matrices for most analog and digital formats
- Simultaneous analog and digital video within a single matrix
- Dual outputs per destination
- Front removable/hot pluggable modules for safe "on-air" maintenance
- Frames come equipped with a node controller module and power supply
- Fully redundant controllers and power supplies available

Video Frames

- Two video frames: 64x64 and 128x128
- Video module granularity of 16 inputs/16 outputs
- "VOM" Video Output Monitoring
- Analog video modules offer
  - 30 MHz ±0.1 dB bandwidth
  - DC Coupled or Clamped signal processing
  - Input cable "EQ" Equalization to 300 meters
- Digital video modules offer
- Operation up to and including 360 Mb/s
- Selectable reclocking @ 143/177/270/360 Mb/s
- "Bypass" non-reclocked mode
- Automatic input cable "EQ" Equalization

Audio Frames

- Two audio frames: Dual 64x64 and 128x128
- Simultaneous analog and/or digital audio within a single matrix
- Audio module granularity of 32 input/output blocks
- "AOM" Audio Output Monitoring
- Analog audio modules offer
  - 200 kHz bandwidth
  - +24 dB headroom
  - "LTC" Linear Time Code operation
- Digital audio modules offer
  - Multi format/rate operation
  - Asynchronous switching

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The Classic Series matrix frames are ideal for facilities that have heavily invested in composite or component analog video equipment, and are starting to make the transition to digital. These matrix frames are unique in that they allow both analog and digital signals to operate within the matrix frame at the same time. As digital requirements increase, simply insert digital modules and configure A-to-D or D-to-A conversion tie lines to and from the analog sources. Dual outputs per destination reduce

Series 7000 Classic 64x64 Matrix Frame.

requirements for external fan out distribution amplifiers, and allow for patch panel connections direct from a destination. The VOM and AOM functions offer the capability to monitor any video or audio signal without disrupting service to its destination.

VIDEO MATRIX FRAMES

Input, crosspoint, output and control interface modules are housed within the frame, along with a video output monitor (VOM) that allows destination monitoring without disruption of service. The 64x64 video frame can accept an internal "MCPU" Master Central Processing Unit system controller module, reducing the need for an external control system.

The analog modules offer multi-format routing of component (RGB and YUV) and composite signals (NTSC and PAL). Inputs can be individually configured as either a DC coupled input for bipolar color difference signals, or DC clamped input for composite NTSC or PAL operation.

The digital modules offer selectable multi-rate data reclocking at 143/270/360 Mb/s for elimination of jitter associated with long cable runs.

AUDIO MATRIX FRAMES

The audio matrix frames house 32x32 block signal modules with on card "AOM" Audio Output Monitoring, and control interface modules. Audio frames are available in both analog and digital versions.

ORDERING INFORMATION

For specifications and ordering information, see order guide 2WW-7401-5.

PERFORMER™ ROUTING SWITCHERS

FEATURES

- 10x1 video/dual audio switching with full breakaway operation
- RS-232/422 serial interface, standard
- Optional remote control panel
- HD, SD and Analog versions available
- Available with built-in control panel (SD & HD only)
- Front panel data reclocking switch for standard data rates or bypass (HD only)
- Two streams of AES digital audio (SD & HD only) with either balanced "D" connectors (SD only) or BNCs
- Pin-compatible with Grass Valley 10XL connectors

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

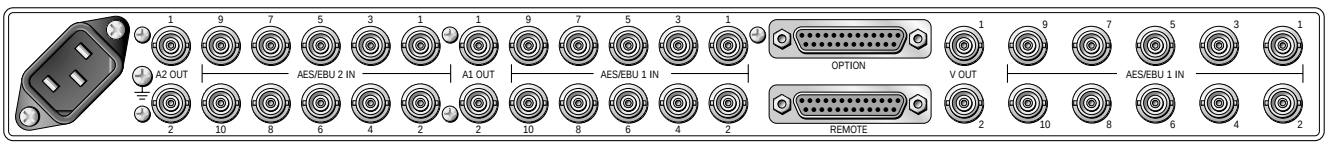
Performer Routing Switchers offer high-performance features in a compact 10x1 design. These compact routers meet the need for low-cost utility routing and are ideal for dubbing or monitoring stations, mobile productions or as a bypass switch in master control.

This three-level breakaway router is available in three different formats:

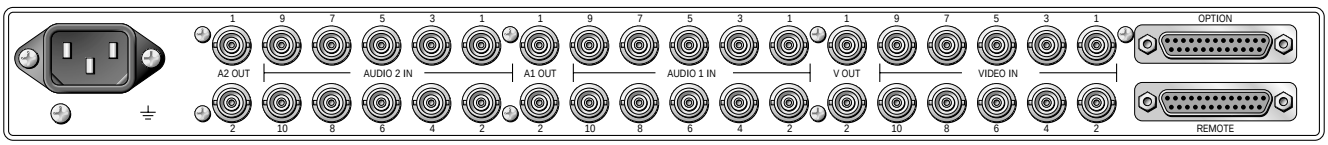
- Performer HD, high-definition serial digital (1.485 Gb/s)
- Performer SD, standard definition serial digital (270 Mb/s)
- Performer Analog, PAL/NTSC

Performer – HD.

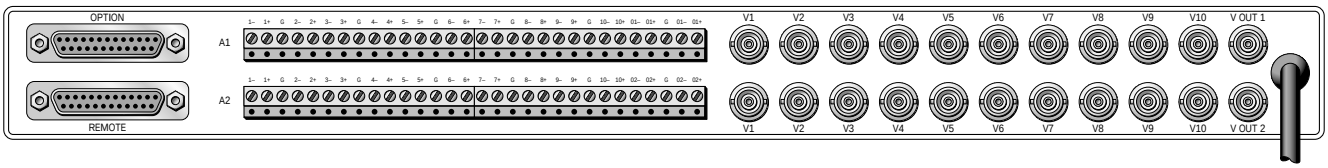
The Performer HD comes standard with local control buttons and an LED status display. A built-in protect feature prevents accidental operation by locking the input select switches and indicating protection on the status display. Standard on all Performer routers is an RS-232/422 serial interface for reliable operation from a remote Performer control panel with the same features. The Performer SD is available with either unbalanced BNC connectors or balanced "D" connectors for audio, and with either built-in local control or with a plain front for remote control applications. The analog version is only available with a plain front. The same remote control panel can be used with any Performer router.



Performer – HD Rear Connectors



Performer – SD Rear Connectors (BNC Version)



Performer – Analog Rear Connectors

PERFORMER™ ROUTING SWITCHERS

SPECIFICATIONS

VIDEO INPUTS
HD Version: 10, 75 Ω 1.485 Gb/s serial digital video, terminating (SMPTE 292M)

SD Version: 10, 75 Ω 270 Mb/s serial digital video, self-terminating (SMPTE 259M)

Analog Version: 10, 75 Ω, looping, return loss >40 dB to 5 MHz (NTSC/PAL)

CABLE EQUALIZATION
HD Version: automatic up to 100 meters (Belden 1694A) at 1.485 Gb/s

SD Version: automatic up to 300 meters (Belden 8281 or equiv.)

AUDIO INPUTS
HD Version: 2 sets (10 each) 75 Ω unbalanced BNCs, AES/EBU (AES3-1992)

SD Version: 2 sets (10 each) 75 Ω unbalanced BNCs (AES3-1992) or 110 Ω balanced D connector (AES3id-1992)

Analog version: 2 sets (10 each) balanced, bridging, >20 kΩ

VIDEO OUTPUTS
HD Version: 1 dual, 75 Ω 1.485 Gb/s serial digital video, terminating (SMPTE 292M)

SD Version: 1 dual, 75 Ω 270 Mb/s serial digital video, self-terminating (SMPTE 259M)

Analog Version: 1 dual, 75 Ω, source terminating (NTSC/PAL)

AUDIO OUTPUTS
HD Version: 2 sets (1 dual loop-through each) 75 Ω unbalanced BNCs, AES/EBU (AES3-1992)

SD Version: 2 sets (1 dual loop-through each) 75 Ω unbalanced BNCs (AES3-1992) or 110 Ω balanced D connector (AES3id-1992)

Analog Version: 2 sets (1 each) balanced, 600 Ω

Control Interface: Serial, RS-232/422, 25-pin D connector

OPERATING MODES
HD Version: 1.485 Gb/s, reclocking or 10 Mb/s to 700 Mb/s, bypass mode

SD Version: reclocking at 143, 177, 270, 360 Mb/s, auto reclocking, or bypass mode

ORDERING INFORMATION

PFR-HD
Performer HD high definition video and AES/EBU audio routing switcher with integral control panel.

PFR-SD
Performer SD Serial Digital Video and AES/EBU routing switcher with D connector audio I/Os and integral control panel.

PFR-SDB
Performer SD Serial Digital Video and AES/EBU routing switcher with BNC audio I/Os and integral control panel.

PFR-SDRC
Performer SD Serial Digital Video and AES/EBU routing switcher with D connector audio I/Os for remote control.

PFR-SDRCB
Performer SD Serial Digital Video and AES/EBU routing switcher with BNC audio I/Os for remote control.

PFR-RC
Performer analog video and dual analog audio routing switcher for remote control.

PSCP
Performer serial control panel.

PTJO
Performer tally, joystick override module.

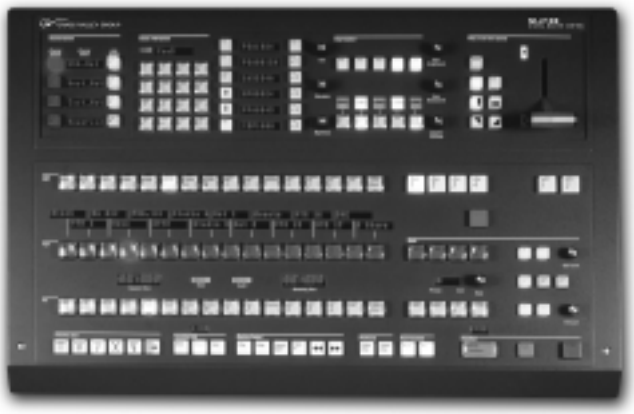
PRMK
Performer rear support rackmount kit.

PMAN
Product Manual.

M-2100 SDTV/HDTV DIGITAL MASTER CONTROL SYSTEM

FEATURES

- Simultaneous control of SDTV and HDTV channels from the same panel
- Supports multiple DTV formats:
  - SDTV 270 Mb/s (50/59.94 Hz)
  - HDTV 1080i, 720p (50/59.94/60 Hz) (59.94/60 Hz)
- Completely configurable system for greater value
- Designed for the future with true multichannel, multipanel functionality
- Integrated SqueezeBack™ effects and Profile® PDR clip stacker
- Unmatched digital audio capabilities
- Extensive, flexible keying functionality
- Routing system interface and control



M-2100 SDTV/HDTV Digital Master Control Panel

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The Grass Valley M-2100 Digital Master Control System addresses the requirements of today's standard definition component digital facilities as well as emerging high definition broadcast needs. Simple expansion to multichannel, multiformat operation from a single control panel makes the M-2100 system ideally suited for facilities increasing their reach with additional channels and services. In addition to multichannel operation, the system offers extensive keying flexibility, separate and embedded internal digital audio processing, and a wide range of software-enabled options.

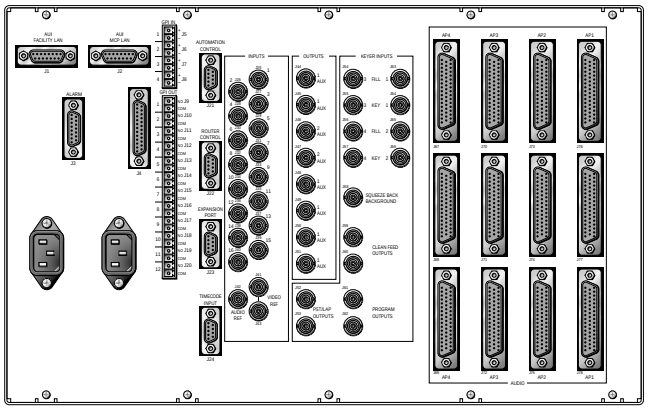
Designed as a true multichannel system, the M-2100 prepares your facility for the future. Your configuration options can be as compact as a single audio/video/control (A/V/C) processing frame or as complex as multiple control panels with multiple SDTV and/or HDTV A/V/C processing frames. Up to 16 on-air channels can be controlled from a single panel. Multiple panels are efficiently connected via the Control Panel LAN. This means greater facility utilization, increased revenue opportunities, and cost and space savings for your broadcast operations.

The M-2100 system employs component serial digital video processing to provide superior picture quality. The highest possible audio quality is achieved using 48 kHz AES/EBU digital audio processing. The SDTV system incorporates 270 Mb/s data rates to provide compatibility with 4:3 or 16:9 picture aspect ratios. The HDTV system incorporates 1.485 Gb/s rates supporting both 720p and 1080i.

Compatible with Windows® 95/98/2000 and NT operating systems, the M-2100 is easily configured via a PC-based Graphical User Interface. For multiple frame operations, a single PC with LAN connection can be used to communicate with all frames.

USER-DEFINED CONFIGURATION

An economical building block approach lets you configure your M-2100 system with the exact features you want. Later, you can easily upgrade and expand your system as your needs and budget require.



SDTV A/V/C Processor Frame Rear Connectors

M-2100 SDTV/HDTV DIGITAL MASTER CONTROL SYSTEM

SqueezeBack™ effects available on SDTV and HDTV

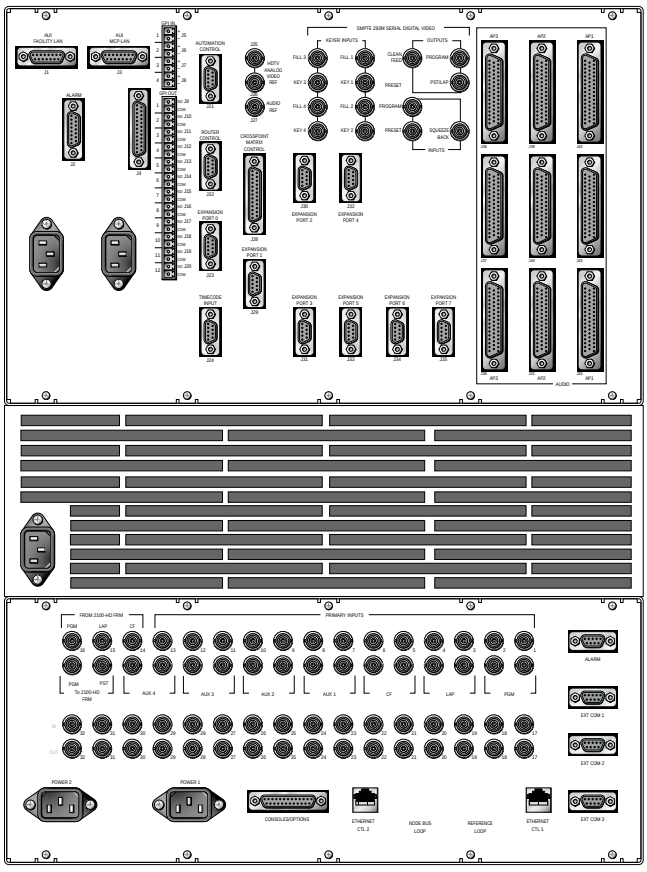
SqueezeBack effects provide an exclusive integrated DVE squeeze and tease effect, with foreground crops, positioning and compressing pictures. This allows you to move a picture to a preset location at a user-selectable rate. SqueezeBack effects also opens an external background input for promotion of your next event during program credits. This function includes protected setups and operator recalls of four preset positions. By integrating an effects system directly into the M-2100, the need for a separate, costly DVE is reduced.

PROFILE® CLIP STACKER

Another unique feature of the M-2100 system is the Profile Clip Stacker. Integrated clip stacking offers single point control for viewing, stacking, and playing-to-air of clips stored on a Profile. With integration via an Ethernet LAN, this feature provides linked inputs, clip name transition logging, and clip name and duration displays. Profile control is integrated into the main master control panel for ease of operation.

GRASS VALLEY CONTROLS

Familiar Grass Valley button-per-function controls are another M-2100 system exclusive. Color differentiated function areas, large LED displays, and the traditional grouped function layout make M-2100 operation a snap. Operators who are familiar with the industry-standard Grass Valley Analog Master 21 system will quickly pick up the new features and functions.



HDTV A/V/C Processor Frame Rear Connectors

DIGITAL AUDIO CAPABILITIES

One digital audio module, providing a single AES/EBU 48 kHz digital audio stream, is standard on both the SDTV and HDTV processing frames. This enables Lt, Rt (Left total, Right total) surround sound capability.

SDTV processing is scalable from one to four digital audio streams. The SDTV system allows embedded audio processing per crosspoint. This exclusive feature provides enhanced system flexibility and lower system cost.

The HDTV processing frame allows up to two additional audio processing modules, supporting six channels, for the best quality AC-3 audio. The HDTV system allows embedded audio processing on a global basis.

HOT PLUGGABLE, FRONT REMOVABLE SDTV AND HDTV MODULES

We understand your need for uninterrupted reliability, so we have included another Grass Valley exclusive: hot pluggable, front removable modules and standard dual power supplies.

EXTENSIVE KEYING CAPABILITIES

Extensive, flexible keying capabilities are scalable to meet your system's needs.

Configure your SDTV system by choosing optional keyer boards. Each board contains dual luminance linear keyers with Borderline® and drop shadow functionality. Two of the optional keyer boards can be added to your SDTV system, providing four luminance linear keyers. The optional chroma keyer will allow the dual keyer module to become a single luminance linear keyer with chroma keyer.

Configure your HDTV system with dual luminance linear keyer functionality: up to four luminance linear keyers or frame store keyers with single luminance linear keyer in place of one or both of the dual keyer modules.

SOFTWARE-ENABLED OPTIONS

A number of optional capabilities can be accessed from the convenience of your own facility. Software options (such as wipe transitions, key borders, SqueezeBack effects, embedded audio processing, transition logging, custom audio-video transitions and serial tally) can be unlocked for immediate demonstration or permanently enabled when purchased.

INTEGRATION WITH GRASS VALLEY SERIES 7000/7500/CONCERTO ROUTING SYSTEMS

Any combination of router source selections can be easily accomplished from the 2100-RPS control panel option. For proper transition logging, source names are carried from the Series 7000/7500 Concerto assignments to the master control panel displays above the program bus. Unique attribute programming allows groups of devices with identical control parameters (including parallel or serial machine control, serial protocols, embedded audio and preroll times) to have parameters defined and adjusted for the prefix group.

M-2100 SDTV/HDTV DIGITAL MASTER CONTROL SYSTEM

M-2100 OPTIONS

The M-2100 includes Integrated Machine Control functionality for easier operation. The M-2100 Device Control Engine enables RS-422 serial machine control of up to 30 dedicated or router linked Sony® or Ampex® protocol VTRs.

Clock Displays of segment and remaining time are displayed on the control panel and can be remotely displayed via a clock driver connection on the back of the panel. Remote Clock Display provides greater flexibility and convenience by allowing viewing from locations around the control room.

The control panel also displays Transition Rate and Transition Delay information in either seconds or frames. Eight character LEDs above the program bus crosspoints indicate configured crosspoint name, dedicated matte source, Profile clip name, or router source names–depending on your system configuration.

Input non-sync detection and indication of all video/audio sources (including program/preset background inputs, key cut, key fill, and all audio input channels) alerts operators of potential problems for quick remedy.

The manual lever arm assembly enables manual transition control of any audio or video transition, including background program/preset wipes and audio mixes. Transitions include: Take, Fade/Fade, Take/Fade Mix (cross-fade/dissolve), and Fade/Take. Additional customer defined transitions can be configured to enable audio lead/lag functionality. Four wipe patterns are included with edge softness and pattern reverse modifiers.

As-Aired transition logging, configuration setups, error reporting and diagnostics, chroma keyer setup, TIFF file transfers, and software upload are all accessible or configurable from an external PC compatible computer running Windows 95/98/2000 or NT operating systems.

Open automation protocol enables complete control of the processing frame with or without the control panel.

SPECIFICATIONS

INPUTS – SDTV SYSTEM
Video System: All inputs:
270 Mb/s serial digital, 75 Ω BNC
16 primary: Pgm, Pst, Aux
4 key source
4 key fill
1 SqueezeBack™ background

Audio System: All inputs: 48 kHz AES3
16 Primary: Pgm, Pst, Aux
4 only

External Reference:
1 looping video reference: NTSC/PAL color black
1 terminating audio reference: 48 kHz clock/signal
1 timecode input: longitudinal TC (LTC)

INPUTS – HDTV SYSTEM
Serial Digital Video:
Type of connectors: 75 Ω BNC, (SMPTE 292M)
Cable equalization: automatic for up to 100 meters of Belden 1694A @ 1.5 Gb/s
Return loss (1 MHz to 1500 MHz): 15 dB minimum

External Reference:
Tri Level Sync
(SMPTE 240M) 50, 59.94 and 60 Hz
Connector: 75 Ω BNC, looping
Nominal amplitude: ±300 mV pp
Line rate: 1080i: 33.7 kHz, 720p: 45 kHz
1 terminating audio reference: 48 kHz clock/signal

SPECIFICATIONS CONTINUED

OUTPUTS – SDTV/HDTV SYSTEMS
Video System:
All outputs 75 Ω BNC
2 program
2 look ahead preview
2 clean feed
4 aux buses with dual outputs

Audio System (per module):
All outputs: 48 kHz AES3
2 program
2 preset
2 clean feed
4 aux buses with dual outputs
Monitoring outputs: 1 monitor #1, 1 monitor #2
Meter drives: 1 program, 1 preset, 1 off-air

HDTV VIDEO STANDARDS
1080i: 50, 59.94 and 60 Hz (SMPTE 274M)
720p: 59.9/60 Hz (SMPTE 296M) (switch selectable)

INTERFACES
Processing Frame:
GPI: Fully configurable 4 inputs/ 12 outputs, each with individual removable "phoenix" connectors
Alarms: 4 dry contact programmable
Router control: 10-BaseT Ethernet
Automation control: RS-422 9-pin female "D" connector
Tally expansion port: RS-422 9-pin female "D" connector

Manual Control Panel:
Alarms: 2 dry contacts

Timecode Outputs:
2 XLR connectors
Segment and remaining

PHYSICAL DIMENSIONS
Manual Control Panel (SDTV/HDTV):

Height	15.5 cm	6.12 in.
Width	68.5 cm	27.0 in.
Depth	43.8 cm	17.25 in.
Weight	21.8 kg	48 lb.

SDTV Processing Frame:

Height (6 RU)	26.0 cm	10.25 in.
Width	48.26 cm	19.0 in.
Depth	47.0 cm	18.5 in.
Weight	25.45 kg	56 lb.

HDTV Processing Frame:

Height (6 RU)	26.67 cm	10.5 in.
Width	48.26 cm	19.0 in.
Depth	47.0 cm	18.5 in.
Weight	26.31 kg	58 lb.

HDTV Crosspoint Matrix:

Height (4 RU)	18.0 cm	7.0 in.
Width	43.0 cm	17.0 in.
Depth	49.0 cm	19.25 in.
Weight	17.69 kg	39 lb.

POWER CONSUMPTION
SDTV Frame:
400 W (maximum)
200 W (typical)

HDTV Frame:
400 W (maximum)
300 W (typical)

Control Panel:
200 W (maximum)
100 W (typical)

ENVIRONMENTAL CHARACTERISTICS SDTV AND HDTV SYSTEMS
NOTE: The frame *requires* forced air cooling with SMS7000 fan assemblies

Operational Temperature: 0° to 40°C (32° to 104°F)

Storage Temperature: -25° to 85°C (-13° to 185°F)

Full Specifications Met At: 20° to 30°C (68° to 86°F) After 30 minute warm-up

Relative Humidity: Up to 95% (noncondensing)

ORDERING INFORMATION

ADDITIONAL INFORMATION
For additional information on these products, please request the following literature:

M-2100
Ordering Guide (2WW-9302-3).

M-2100
Installation Planning Guide (2WW-9303).

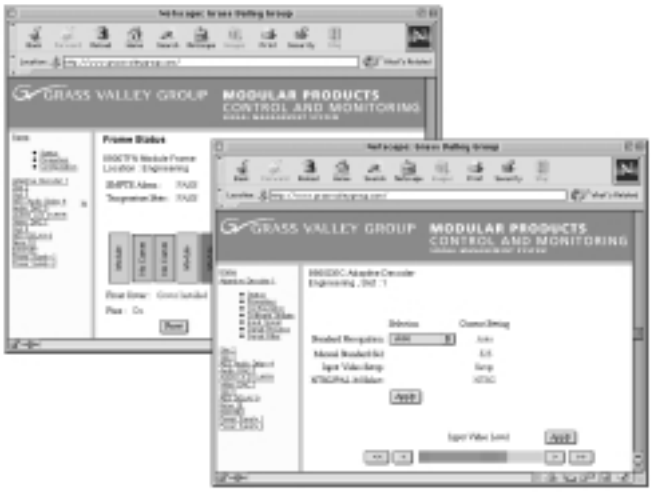
M-2100 Poster (2WW-9355).

REMOTE CONTROL AND MONITORING

FEATURES

- Choice of user interfaces: computer GUI or control panel
- Open, industry standard protocols (SNMP, HTTP, TCP/IP)
- Web browser interface
- Unlimited system expansion
- Easy upgrade from local to remote control & monitoring
- No need to upgrade network I/F card when new modules are added to the series
- Compatible with 8900 and 2000 series frames
- Feature enhancements downloadable over the internet

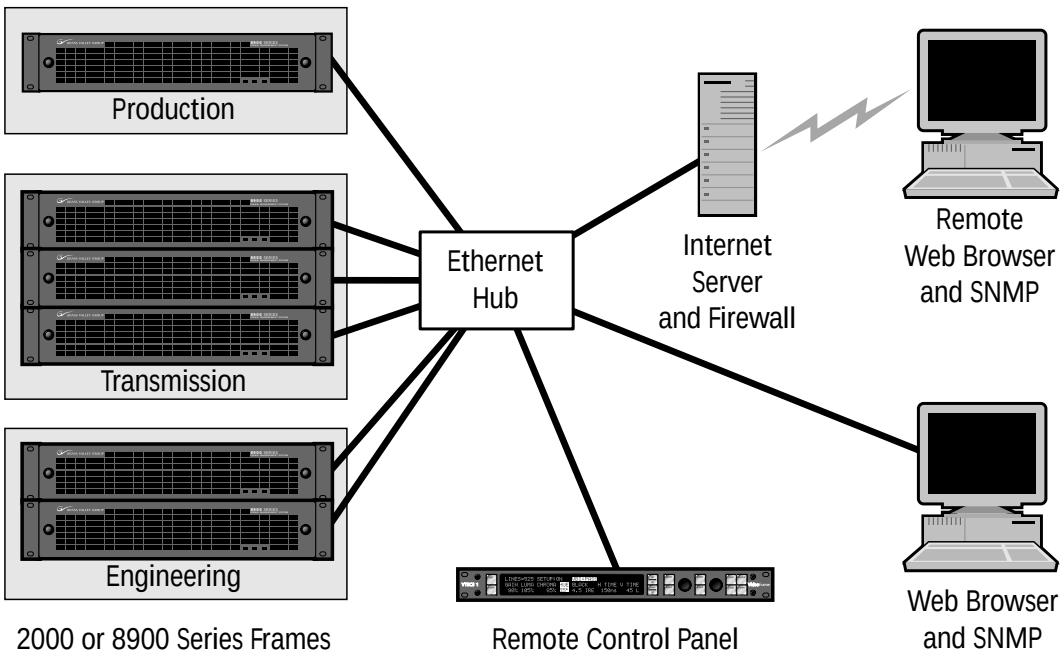
For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.



As with most industries, the broadcast, cable and video production industries are under fire to improve efficiency. Our modular control & monitoring system will help you do just that. We recognize the need to leverage existing network technologies to provide an open, robust and extensible network solution. We also recognize different applications will require different user interfaces. For these reasons we've designed our system using industry standard, open protocols and offer a choice of three different user interfaces: web browser, SNMP and a easy-to-navigate control panel.

The block diagram below shows one potential network to give an idea of the powerful capability of our network solutions. Your specific network may vary from this.

The web browser interface comes standard with all our networked frames (8900TFN, 2000T1N or 2000T3N). The web server is actually right on the ethernet card which resides in the frame. It creates web pages based on the user's requests and sends them out over a standard ethernet TCP/IP network. The good news is that you don't need to buy any expensive S/W to go on your PC. Just use a standard web browser such as Internet Explorer™ or Netscape™.

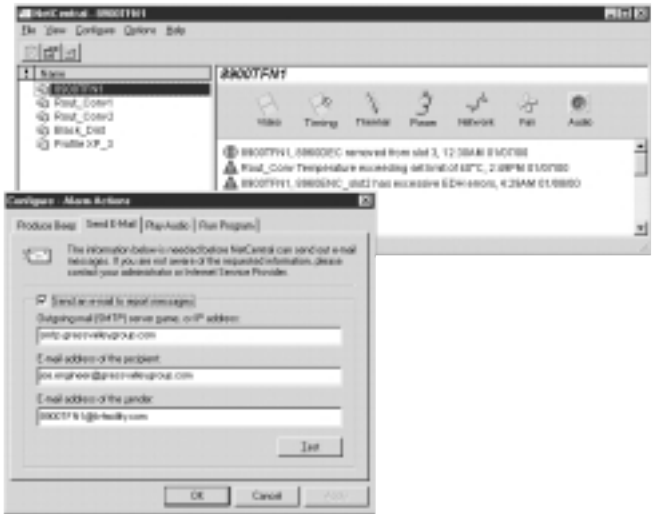


Remote control and monitoring allows quick changes to module settings and alerts you of any problems whether in the office, the equipment room, or at home.

REMOTE CONTROL AND MONITORING

The SNMP interface allows for powerful monitoring and datalogging functionality. Here is where improvements in efficiency really start paying off. The SNMP interface can help your maintenance staff by constantly watching your equipment for you. If there is a problem such as excessive frame temperature, failed fan or power supply or loss of video, it will alert you by sending a message to an SNMP manager, which can in turn, datalog the message or send out emails, call pagers or cell phones. The conditions which would generate such an alarm are user configurable so you only get the messages you want. By using this open, industry standard protocol, you can choose an SNMP manager to suit your specific needs. Grass Valley Group offers a simple-to-use SNMP manager called NetCentral™. NetCentral is specifically designed to monitor all Grass Valley products which support SNMP. Our SNMP enabled products can also interface to other industry-standard SNMP managers such as HP OpenView™ for more general purpose applications.

The control panel, which we've partnered with Videoframe™, also communicates over the same Ethernet/TCP/IP network and can be configured to address any number of frames on the network. All you need is their IP address. It's designed with an easy-to-use interface so you won't need to drill down multiple layers of controls to get to the parameter you want to change. Typical applications include correcting lip sync error or video gain on incoming feeds.



SNMP Alarms can notify you by phone, pager, or e-mail with any problems such as lost signals or over-temperature conditons.

Use the VTECS™ 1 remote control panel in the control or equipment room to make quick adjustments to module settings such as video color and level or to correct lip-sync errors.

ORDERING INFORMATION

2000T1DN
1 RU frame, dual redundant P/S, Ethernet I/F

2000T3N
3 RU frame, single P/S, Ethernet I/F

2000NET
Network interface card

8900TFN
2 RU frame w/fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 2000NET or 8900NET module)

NETC2MGR
NetCentral Enterprise software

VTECS 1
Remote control panel. Contact Videoframe directly to order
Phone 530-477-2000
Fax 530-477-7599

FRAME COMPATIBILITY CHART

Modules	2000T1D, 2000T1N, 2000T3, 2000T3N	8900TX, 8900TF, 8900TFN	8900T2, 8900T2-F	8500T2-DC48	8550T1, 8550T2 (-120/-240)	8560T2 (-120/-240)	7510T1, 7510T2
2000A89	X						
2000NET	X						
2010RDA	X						
2010RDA-110	X						
2011RDA-110	X						
2020ADC	X						
2020DAC	X						
2030RDA	X						
2040RDA	X						
2041RDA	X						
2041EDA	X						
2042EDA	X						
2090MDC	X						
8900FSS**		X	X				
8911	X*	X	X				
8914	X*	X	X				
8916	X*	X	X				
8920ADC	X*	X	X				
8920ADT		X	X				
8920DAC	X*	X	X				
8920MUX	X*	X	X				
8920MUX-110		X	X				
8920DMX	X*	X	X				
8920DMX-110		X	X				
8931	X*	X	X	X			
8936	X*	X	X	X			
8941	X*	X	X	X			
8950ADC	X*	X	X				
8950DAC		X	X				
8960DEC	X*	X	X				
8960ENC	X*	X	X				
8981FS	X*	X	X				
8990ARC	X*	X	X				
8800		X	X	X			
8801		X	X	X			
8802		X	X	X			
8503		X	X	X			
8504		X	X	X			
8506		X	X	X			
8551					X		
8552R					X		
8561						X	
7510N							X
7510P							X
8900NET		X					

**These modules fit within the 2000 Series frames with the use of the 2000A89 module adapter card*

***Sub module for 8960DEC and 8960ENC*

CONVERSION MODULE SELECTION TABLES

VIDEO MODULE SELECTION MATRIX

From	To: NTSC/PAL	To: CAV	To: 4:2:2 (SDI)	To: Digital HD	To: Compressed Video (eg. SMPTE310M, DVB-ASI)
NTSC/PAL	8800 8801 8802 8503 8504 8506 7510N/P		8960DEC		
CAV		8800 8801 8802 8503 8504 8506	8950ADC		
4:2:2 (SDI)	8960ENC 8941	8950DAC	2030RDA 2040RDA, 2041RDA 2041EDA, 2042EDA 8931, 8936 8941, 8981FS 8990ARC		
Digital HD	2090MDC	2090MDC	2090MDC	2040RDA 2041RDA 2041EDA 2042EDA 2090MDC	
Compressed Video (eg. SMPTE310M, DVB-ASI)					2030RDA 2040RDA 2041RDA 2041EDA 2042EDA

AUDIO MODULE SELECTION MATRIX

From	To: Analog Audio	To: AES	To: Embedded Audio
Analog Audio	8551 8552R 8561	2020ADC 8920ADC 8920ADT	8920ADC, 8920MUX
AES	2020DAC 8920DAC	2010RDA, 2011RDA 8800, 8801, 8911, 8914, 8916	8920MUX
Embedded Audio	8920DAX 8920ADC	8920DMX	2030RDA, 2040RDA 2041RDA, 2041EDA, 2041EDA 8931, 8936 8941, 8981FS

DISTRIBUTION AMPLIFIER SELECTION TABLES

WIDEBAND DISTRIBUTION AMPLIFIERS

Model	Outputs	Frame	Hot-swappable	Auto EQ Distance (m)	SD Reclocking	HD Reclock
2040RDA	9	2000	Y	300 (SD); 100 (HD)	Y	Y
2041RDA	9	2000	Y	300 (SD); 100 (HD)	Y	Y
2041EDA	8	2000	Y	100 (SD); 100 (HD)	N	N
2042EDA	2x4	2000	Y	100 (SD); 100 (HD)	N	N

DIGITAL VIDEO DISTRIBUTION AMPLIFIERS

Model	SD Outputs	Frame	Reclocking	Reclock Rates Mb/s	Data Rate Selection	Analog Monitoring
2030RDA	9	2000	Y	143/177/270/360	Auto	
8931	8	8900	N	N/A	Jumper	
8936	8	8900	Y	143/177/270/360	Auto	
8941	4	8900	Y	270	None	Y
2040RDA	9	2000	Y	143/177/270/360, 1.5Gb/s	Auto	
2041RDA	9	2000	Y	143/177/270/360, 1.5Gb/s	Auto	
2041EDA	8	2000	N	NA	Auto	

ANALOG VIDEO DISTRIBUTION AMPLIFIERS

Model	Outputs	Frame	Equalization	Equalization Length (m)	Clamping	Selectable Delay
8800	8	8900	None	N/A		
8801	8	8900	None	N/A		
8802	8	8900	Y	0, 150 or 300		
8503	6	8900	Y	0 – 300 ±1 m		
8504	6	8900	Y	0, 150 or 300		Y
8506	6	8900	Y	0, 150 or 300	Y	

ANALOG AUDIO DISTRIBUTION AMPLIFIERS

Model	Signal Type	Outputs	Frame	Gain Control	Remote Control
8551	Monaural Analog	6	8550	Jumper w/trim	No
8552R	Monaural Analog	6	8550	Front panel & remote	Yes
8561	Stereo Analog	6	8560	Front panel	No

EQUALIZATION TABLE

Cable Type	8802	8503	8504	8506
Belden 8281/8828/PSF1/2	8EQ-8281	83EQ-8281	84EQ-8281	8EQ-8281
Belden 1694A	8EQ-1694A	83EQ-1694A	N/A	N/A
RG59U/Belden 9259	8EQ-9259	83EQ-9259	84EQ-9259	8EQ-59U
RG11/U, Belden 8238	88EQ-11	N/A	N/A	N/A
CANARE L-5C2VS	8EQ-5C2VS	N/A	N/A	8EQ-5C2VS
PIK AF 0.6/3.7	8EQ-0.6/3.7	83EQ-0.6/3.7	84EQ-0.6/3.7	8EQ-0.6/3.7
PIK AF 0.6/2.8	8EQ-0.6/2.8	83EQ-0.6/2.8	84EQ-0.6/2.8	8EQ-0.6/2.8
PIK AF 1.0/6.6	8EQ-1.0/6.6	83EQ-1.0/6.6	84EQ-1.0/6.6	8EQ-1.0/6.6
PSF 1/3	8EQ-PSF1/3	83EQ-PSF1/3	N/A	8EQ-PSF1/3

Digital Audio Distribution

DIGITAL AUDIO DISTRIBUTION AMPLIFIERS

Model	Outputs	Frame	Sample Rate	Interface
8911	1x8	8900	32Khz-48Khz	75Ω BNC
2010RDA	1x8, 2x4	2000	32Khz-96Khz	75Ω BNC
2010RDA-110	1x16, 1x8	2000	32Khz-96Khz	110Ω 15 pin D input, 25 pin D out
2011RDA-110	1x16, 2x8, 4x4	2000	32Khz-96Khz	110Ω 15 pin D input, 25 pin D out

2000 WIDEBAND SERIES

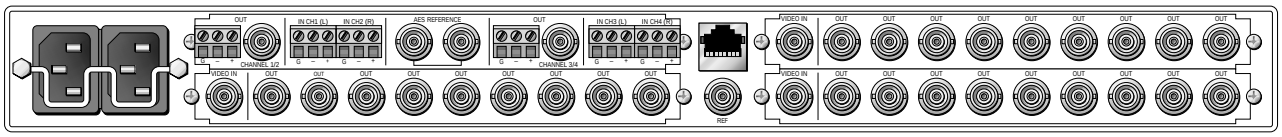
FEATURES

- Wide bandwidth performance: HDTV, SDTV, Analog audio & video, compressed data formats
- 4 modules in 1RU or 12 modules in 3RU frame
- Ethernet interface for remote control and monitoring
- Mid-plane design enables flexible I/O
- Hot-swappable, redundant power supplies
- Sufficient cooling and power for any combination of modules
- Accommodates most 8900 modules with 2000A89 adapter

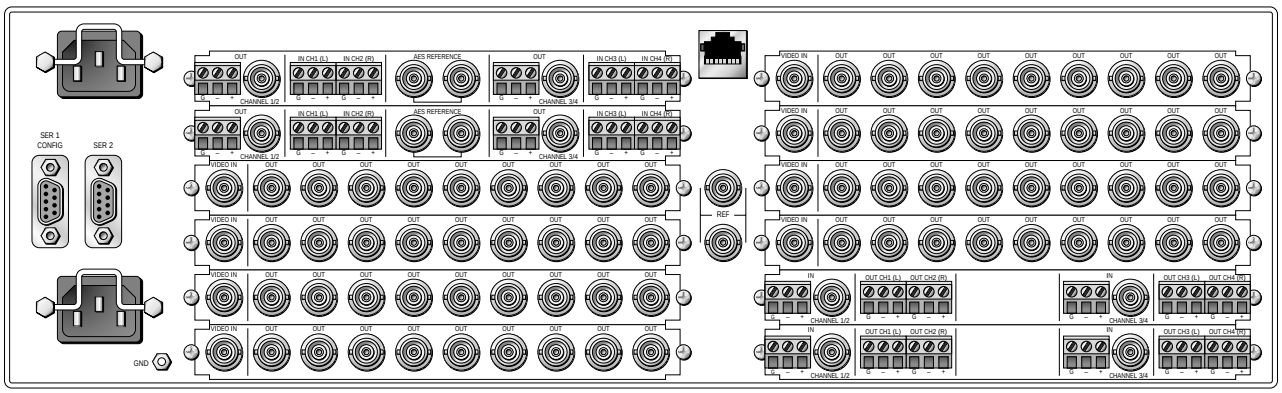
For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

2000 WIDEBAND SERIES

The 2000 Wideband Series has been designed with the future of modular products in mind. It can handle any signal you can throw at it: HDTV, SDTV, Analog, AES, Data… and our line of Wideband Distribution Amplifiers will provide an easy upgrade path from SD to HD. The frames provide for flexible I/O with each module defining the specific connector needs for the particular application. To minimize signal losses resulting from the higher speed HDTV signals, a direct connection from the front to the rear module is provided. The same powerful and scalable remote control and monitoring system, offered with our popular 8900 series, is available as an optional upgrade for the 2000 series as well. All modules have local control with remote control lock-out for cases where you don't want a particular module accessible remotely.



2000T1 Frame – Rear Connectors



2000T3 Frame – Rear Connectors.

ORDERING INFORMATION

2000T1D
1 RU frame, dual redundant P/S

2000T1DN
1 RU frame, dual redundant P/S, Ethernet I/F (2000NET)

2000T3
3 RU frame, single P/S

2000T3N
3 RU frame, single P/S, Ethernet I/F (2000NET)

2000PS
130/260 W power supply sled (for all 2000T3 and 2000T3N series frames)

2000PS1D
130 W dual redudant power supply for 1 RU frame

2000FAN
Fan sled for 3 RU frame (required for >150 W frame loading)

2000NET
Network interface card

8900CAB
Cable package for network interface (requires 2000NET module)

2000A89
8900 module adapter

2000TMAN
2000 Series frame manual

2000TEMI
Blank Rear panels

NETC2MGR
NetCentral II Manager

2000NET NETWORK INTERFACE MODULE

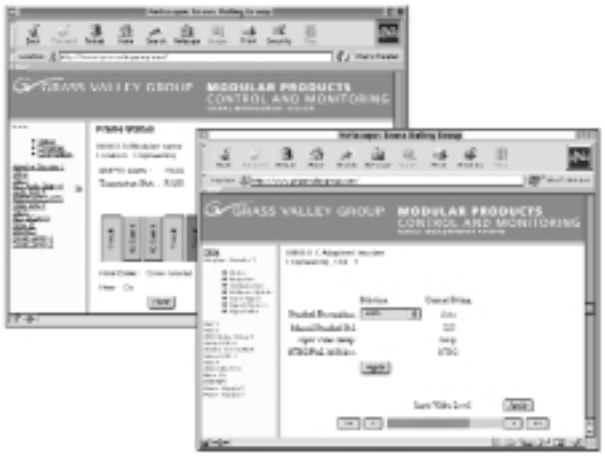
FEATURES

- Choice of user interfaces: computer GUI or control panel
- Open, industry standard protocols (SNMP, HTTP, TCP/IP)
- Web browser interface
- Unlimited system expansion
- Easy upgrade from local to remote control and monitoring
- No need to upgrade network interface card when new modules are added to the series
- Compatible with 2000 Series frames
- Feature enhancements downloadable over the internet

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

As with most industries, the broadcast, cable and video production industries are under fire to improve efficiency. Our 2000NET modular control and monitoring system will help you do that with an open, robust and extensible network solution. We've designed our system using industry standard, open protocols and offer a choice of three different user interfaces: web browser, SNMP and a easy-to-navigate control panel.

The web browser interface comes standard with our 2000NET Network Interface Module. The web server is actually right on the card. It creates web pages based on the user's requests and sends them out over a standard ethernet TCP/IP network. You don't need to buy any expensive software to go on your PC. Just use a standard web browser such as Internet Explorer™ or Netscape™.



Browser GUI

2000NET Network Interface Module

VTECS 1

SNMP GUI

The SNMP interface for powerful monitoring and datalogging is where improvements in efficiency really pay off. The SNMP interface constantly watches your equipment for you. If there is a problem, such as excessive frame temperature, failed fan or power supply or loss of video, it will alert you by sending a message to an SNMP manager, which can in turn, datalog the message or send out emails, call pagers or cell phones. The conditions which would generate such an alarm are user configurable. GVG offers a simple-to-use SNMP manager called NetCentral™ II. NetCentral II is specifically designed to monitor all GVG products which support SNMP. Our SNMP enabled products can also interface to other industry-standard SNMP managers such as HP OpenView™ for more general purpose applications.

The control panel, which we've partnered with Videoframe™, also communicates over the same Ethernet/TCP/IP network and can be configured to address any number of frames on the network. It's designed with an easy-to-use interface so you won't need to drill down multiple layers of controls to get to the parameter you want to change. Typical applications include correcting lip sync error or video gain on incoming feeds.

ORDERING INFORMATION

2000NET
Network Interface Module

2000T1D
1RU frame, dual redundant P/S

2000T1DN
1RU frame, dual redundant P/S
Ethernet I/F (2000NET)

2000T3
3RU frame single P/S

2000T3N
3RU frame, dual redundant P/S
Ethernet I/F (2000NET)

2000FAN
Fansled for 3RU Frame

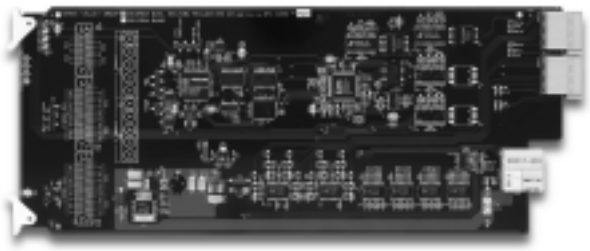
2000EMI
Blank rear modules

NETC2MGR
NetCentral II Manager

2010RDA AES/EBU RECLOCKING DISTRIBUTION AMPLIFIER

FEATURES

- Unbalanced Audio SMPTE 276M 75 Ω BNC I/O
- Single input and dual input operation
- 8 reclocked outputs in single mode, 4 reclocked outputs in dual mode
- Auto-detect data rate and reclock at 32, 44.1, 48 or 96 kHz
- Reclocking provides jitter reduction
- Input transformer coupling
- Housed in the same frame with other 2000 audio and video modules
- Remote control via Ethernet frame interface

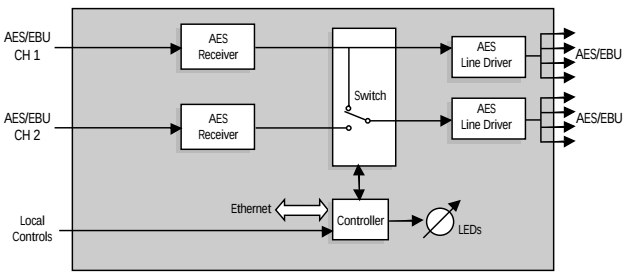


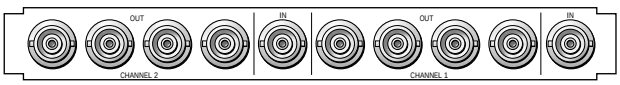
2010RDA AES/EBU Reclocking Distribution Amplifier

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The 2010RDA is a single or dual operation 75 Ω unbalanced AES/EBU distribution amplifier. The 2010RDA is configured with a jumper to provide a single input with 8 outputs or as a dual, 2 input 4 outout DA providing 2 distinct 4 output distribution amplifiers on a single card. It provides auto-detect data reclocking at sample rates of 32, 44.1, 48 or 96 kHz for the most demanding AES/EBU requirments.

All possible adjustments to this card can be performed directly on the module. If a 2000NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 2000 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.





2010RDA AES/EBU Reclocking Distribution Amplifier - Rear Panel

SPECIFICATIONS

AES/EBU INPUT

DIGITAL INPUT SIGNAL:
AES3ID - 1992

NUMBER OF INPUTS:
Single or Dual

COMMON MODE RANGE:
+10/-10V

DIFFERENTIAL VOLTAGE RANGE:
200mV to 12V pk-pk

SAMPLE RATE:
32kHz, 44.1kHz, 48KHz or 96kHz

INPUT RETURN LOSS:
>15dB (100KHz-10MHz)

MAXIMUM JITTER:
<6.5ns RMS

CONNECTOR TYPE:
75 Ω BNC

AES/EBU OUTPUT SIGNAL

SIGNAL TYPE:
AES3ID - 1992

NUMBER OF OUTPUTS:
8 unbalanced 75 Ω in single mode, 4 unbalanced 75Ω in dual mode

SIGNAL TYPE:
SMPTE 276M (AES-3id - 1995 format)

OUTPUT LEVEL:
Unbalanced - 1V±.1 p-p terminated in 75 Ωs

RISE/FALL TIME:
30 ns to 44 ns across a 75Ω load (AES-3id)

CONNECTOR TYPE:
BNC (75 Ω)

OUTPUT RETURN LOSS:
>15dB (100kHz-6MHz)

MAXIMUM JITTER:
<6.5ns RMS

PERFORMANCE DC OFFSET:
<± 1mV

ELECTRICAL LENGTH(DELAY):
560nSec

POWER CONSUMPTION:
< 3.3W

OPERATING TEMPERATURE:
0 to 40 degrees C

HUMIDITY RANGE:
0 to 90% non condensing

INDICATORS & CONTROLS

INDICATORS:
Power, CH1, CH2, input impedance, CH1, CH2, Sample Rate, internal fault,

ORDERING INFORMATION

2010RDA
AES/EBU Reclocking distribution amplifier

2010RDAMAN
Product manual

2000T1D
1RU frame, dual redundant P/S

2000T1DN
1RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000T3
3RU frame single P/S

2000T3N
3RU frame, dual redundant P/S Ethernet I/F (2000NET)

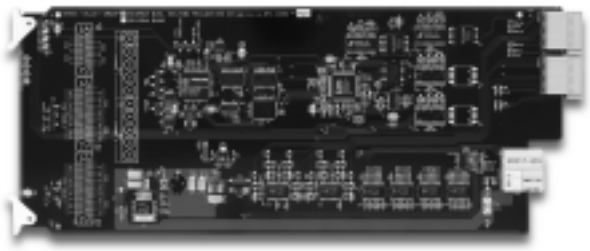
2000FAN
Fansled for 3RU Frame

2000EMI
Blank rear modules

NETC2MGR
NetCentral™ II Manager

2010RDA-110 AES/EBU RECLOCKING DISTRIBUTION AMPLIFIER

- Balanced 110 Ω AES3
- Single and dual mode operation
- 16 reclocked outputs in single mode, 8 reclocked outputs in Dual mode
- Auto-detect data rate and reclock at 32, 44.1, 48 or 96 kHz
- Reclocking provides jitter reduction
- Transformer coupled inputs and outputs
- Housed in the same frame with other 2000 audio and video modules
- Remote control via Ethernet frame interface

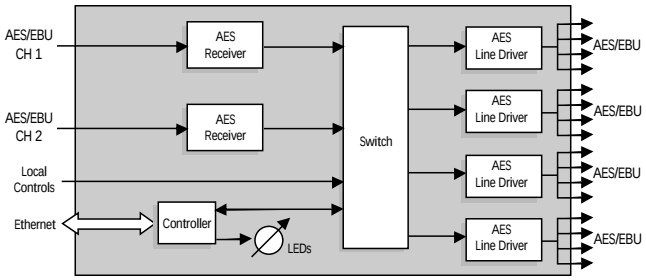


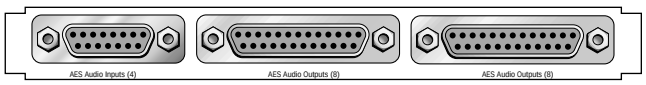
2010RDA-110 AES/EBU Reclocking Distribution Amplifier

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The 2010RDA-110 is a single or dual distribution amplifier providing 110 Ω balanced AES3. The 2010RDA-110 is configured with a jumper to provide a single input with 16 outputs or dual inputs with 8 outputs. It provides Auto-detect data reclocking at sample rates of 32, 44.1, 48 or 96 kHz for the most demanding AES/EBU systems with the flexibility of providing the correct number of outputs to match you requirments.

All possible adjustments to this card can be performed directly on the module. If a 2000NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 2000 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.





2010RDA-110 AES/EBU Reclocking Distribution Amplifier - Rear Panel

SPECIFICATIONS

AES/EBU INPUT

DIGITAL INPUT SIGNAL:
AES3 Transformer coupled

NUMBER OF INPUTS:
Single ,or Dual user definable.

COMMON MODE RANGE:
+10/-10V

DIFFERENTIAL VOLTAGE RANGE:
200mV to 12V pk-pk

SAMPLE RATE:
32kHz, 44.1kHz, 48KHz or 96kHz

INPUT RETURN LOSS:
>15dB (100KHz-10MHz)

MAXIMUM JITTER:
<6.5ns RMS

CONNECTOR TYPE:
D-connector

AES/EBU OUTPUT SIGNAL

SIGNAL TYPE:
Balanced AES3 Transformer coupled

NUMBER OF OUTPUTS:
16 in single mode, 8 in dual mode

OUTPUT LEVEL:
Balanced -2V to +7V p-p terminated in 110 Ωs

RISE/FALL TIME:
5 ns to 30 ns across a 110 Ω load (AES3)

CONNECTOR TYPE:
BNC (75 Ω)

OUTPUT RETURN LOSS:
>15dB (100kHz-6MHz)

MAXIMUM JITTER:
<6.5ns RMS

PERFORMANCE DC OFFSET:
<± 1mV

ELECTRICAL LENGTH(DELAY):
560ns

POWER CONSUMPTION:
< 3.3W

OPERATING TEMPERATURE:
0 to 40 degrees C

HUMIDITY RANGE:
0 to 90% non condensing

INDICATORS & CONTROLS

INDICATORS:
Power, CH1, CH2, CH3 & CH4 lock, input impedance,

Ch1, CH2, CH3 &CH4 Sample Rate, internal fault

ORDERING INFORMATION

2010RDA-110
AES/EBU Reclocking distribution amplifier

2010RDA-110MAN
Product manual

2000T1D
1RU frame, dual redundant P/S

2000T1DN
1RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000T3
3RU frame single P/S

2000T3N
3RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000FAN
Fansled for 3RU Frame

2000EMI
Blank rear modules

NETC2MGR
NetCentral II Manager

2011RDA-110 AES/EBU RECLOCKING DISTRIBUTION AMPLIFIER

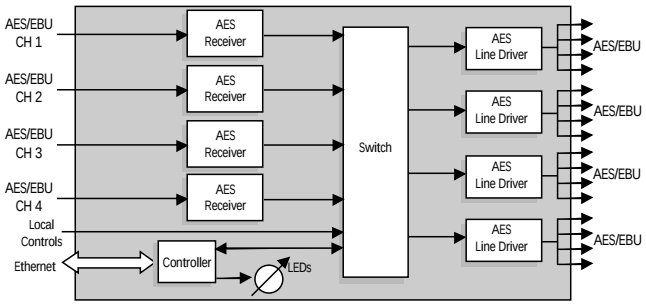
FEATURES

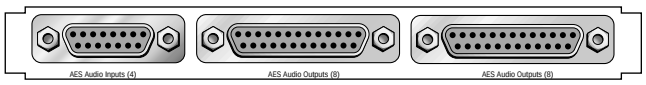
- Balanced 110 Ω AES3
- Single, Dual and Quad mode
- 16 reclocked outputs in single mode, 8 reclocked outputs in dual mode, 4 reclocked outputs in quad mode
- Auto-detect data rate and reclock at 32, 44.1, 48 or 96 kHz
- Reclocking provides jitter reduction
- Transformers coupled inputs and outputs
- Housed in the same frame with other 2000 audio and video modules
- Remote control via Ethernet frame interface

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The 2011RDA-110 is a single, dual or quad distribution amplifier providing 110 Ω balanced AES3. The 2011RDA-110 is configured with a jumper to provide a single input with 16 outputs, dual inputs with 8 outputs or quad input with 4 outputs. It provides auto-detect data reclocking at sample rates of 32, 44.1, 48 or 96 kHz for the most demanding AES/EBU systems with the flexibility of providing the correct number of outputs to match you requirments.

All possible adjustments to this card can be performed directly on the module. If a 2000NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 2000 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.





2011RDA-110 AES/EBU Reclocking Distribution Amplifier - Rear Panel

2011RDA-110 AES/EBU Reclocking Distribution Amplifier

SPECIFICATIONS

AES/EBU INPUT

DIGITAL INPUT SIGNAL:
AES3 Transformer coupled

NUMBER OF INPUTS:
Single , Dual or Quad user definable

COMMON MODE RANGE:
+10/-10V

DIFFERENTIAL VOLTAGE RANGE:
200mV to 12V pk-pk

SAMPLE RATE:
32kHz, 44.1kHz, 48KHz or 96kHz

INPUT RETURN LOSS:
>15dB (100KHz-10MHz)

MAXIMUM JITTER:
<6.5ns RMS

CONNECTOR TYPE:
D-connector

AES/EBU OUTPUT SIGNAL

SIGNAL TYPE:
Balanced AES3 Transformer coupled

NUMBER OF OUTPUTS:
16 in single mode, 8 in dual mode, 4 in quad mode

OUTPUT LEVEL:
Balanced -2V to 7V p-p terminated in 110 Ωs

RISE/FALL TIME:
5 ns to 30 ns across a 110 Ω load (AES3)

CONNECTOR TYPE:
BNC (75 Ω)

OUTPUT RETURN LOSS:
>15dB (100kHz-6MHz)

MAXIMUM JITTER:
<6.5ns RMS

PERFORMANCE

DC OFFSET:
<± 1mV

ELECTRICAL LENGTH(DELAY):
560ns

POWER CONSUMPTION:
< 3.3W

OPERATING TEMPERATURE:
0 to 40 degrees C

HUMIDITY RANGE:
0 to 90% non condensing

INDICATORS & CONTROLS

INDICATORS:
Power, CH1, CH2, CH3 & CH4 lock, input impedance,
Ch1, CH2, CH3 &CH4 Sample Rate, internal fault

ORDERING INFORMATION

2011RDA-110
AES/EBU Reclocking distribution amplifier

2011RDA-110MAN
Product manual

2000T1D
1RU frame, dual redundant P/S

2000T1DN
1RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000T3
3RU frame single P/S

2000T3N
3RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000FAN
Fansled for 3RU Frame

2000EMI
Blank rear modules

NETC2MGR
NetCentral II Manager

2020ADC 4 CHANNEL AUDIO A-TO-D CONVERTER

FEATURES

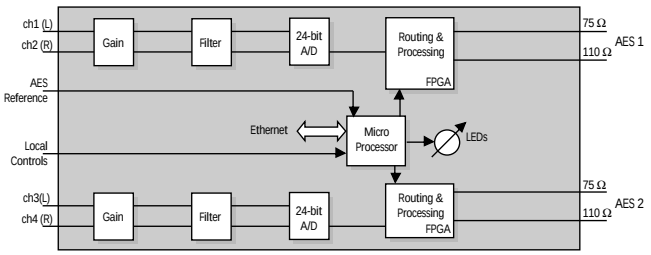
- Converts 4 channels of analog audio
- 24-bit quantization
- 48 kHz sampling rate
- +12 to +28 dBu input range
- Channel swap, phase invert and sum output modes
- 75 Ω unbalanced and 110 Ω balanced outputs
- Supports networked control & monitoring

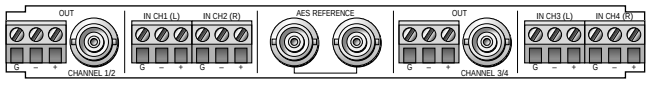
2020ADC 4 Channel Audio A-to-D Converter

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The 2020ADC offers high density conversion of analog audio with 4 channel capacity on a single 2000 series module. Superior signal to noise performance is achieved with 24-bit quantization and gain adjustment of the analog input. The 2020ADC is more than a simple converter with its wide range of output modes. Signal errors such as phase inversion and swapped channels can easily be detected and corrected. Also, given the 2000 series large connector capacity, both 75 and 110 Ω connectors are accommodated on the same module allowing it to be easily repurposed from one impedance application to another.

All possible adjustments to this card can be performed directly on the module. If a 2000NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 2000 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.





2020ADC 4 Channel Audio A-to-D Converter – Rear panel

SPECIFICATIONS

ANALOG INPUT
Number of Inputs: 4 channels (2 stereo pairs)
Connector Type: Plug-in terminal block
Level for Full Scale Output: +12 dBu to +28 dBu
Input Impedance: > 22 kΩ
Common Mode Rejection: >80 dB at 50/60 Hz, >45 dB to 20 kHz

REFERENCE INPUT
Signal Type: AES3id – 1995, Transformer coupled
Number of Inputs: 1 Loopthrough
Connector Type: BNC
Impedance: High Z
Sample Rate: 48 kHz
Input Return Loss: >15 dB (100 kHz – 10 MHz)

OUTPUT
Signal Type: AES3 – 1992 (110 Ω) and AES-3id – 1992 (75 Ω)
Number of Outputs: 2 – 110 Ω balanced
2 – 75 Ω unbalanced
Connector Type: 75 Ω BNC and plug-in terminal block
Sample Rate: 48 kHz
Output Return Loss: >15 dB

PERFORMANCE
Quantization: 24-bit
Signal/Noise Ratio: >105 dB "A" weighted
THD+Noise: <0.005%
Interchannel Crosstalk: <-95 dB
Intermodulation Distortion: <-100 dB
Frequency Response: ±0.05 dB
DC Offset: <± 1 mV
Electrical Length: 650 µs
Power Consumption: <9 W
Operating Temperature: 0 to 45ºC
Humidity Range: 0 to 90% noncondensing
Nonoperating Temperature: -10 to 70° C

INDICATORS & CONTROLS
Indicators: Input present, input clipping, reference present , power, fault, communication active, configuration, remote override
Controls: Fine and Course gain
10 output modes (normal, channel swap, phase invert, channel sum, tone)
Remote: All indicators & controls via Ethernet

ORDERING INFORMATION

2020ADC
4 Channel Audio A-to-D Converter

2020ADCMAN
Product Manual

2000T1D
1RU frame, dual redundant P/S

2000T1DN
1RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000T3
3RU frame single P/S

2000T3N
3RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000FAN
Fansled for 3RU Frame

2000EMI
Blank rear modules

NETC2MGR
NetCentral II Manager

2020DAC 4 CHANNEL AUDIO D-TO-A CONVERTER

FEATURES

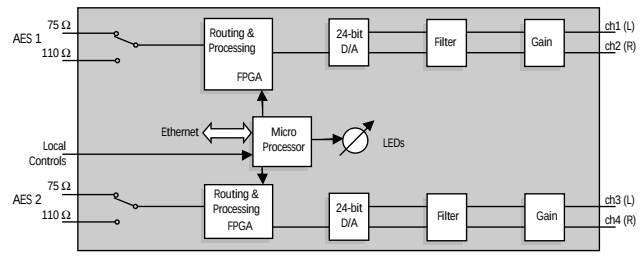
- Converts 4 channels of audio from 2 AES streams
- 20-bit quantization
- 32, 44.1 and 48 kHz sampling rates with indicators
- Converts any rate from 32kHz to 48kHz
- +14 to +24 dBu output range
- Channel swap, phase invert and sum output modes
- 75 Ω unbalanced and 110 Ω balanced inputs, jumper selectable
- Supports networked control and monitoring

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

2020DAC 4 Channel Audio D-to-A Converter

The 2020DAC offers high density conversion of two AES streams on a single 2000 series module. Superior signal to noise performance is achieved with 24-bit processing. The 2020DAC is more than a simple converter with its wide range of output modes. Signal errors such as phase inversion and swapped channels can easily be detected and corrected. Also, given the 2000 series' large connector capacity, both 75 and 110 Ω connectors are accommodated on the same module allowing it to be easily repurposed from one impedance application to another.

All possible adjustments to this card can be performed directly on the module. If a 2000NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 2000 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.



2020DAC 4 Channel Audio D-to-A Converter – Rear panel

SPECIFICATIONS

INPUT
Signal type: AES-3id – 1995 (75 Ω) and AES-3 balanced input, (110 Ω)
Connector Types: 75 Ω BNC and 110 Ω terminal block
Sampling Rates: 32 kHz to 48 kHz, with indicators at 32, 44.1 and 48 kHz
Input Return Loss: >15 dB (100 kHz – 10 MHz)

ANALOG OUTPUT
Number of Outputs: 4
Output Level for 0dBFS Input: +14 to +24 dBu max
Output Impedance: 50 Ω (50 Ω single ended 100 Ω differential)
Connector Type: Terminal block

PERFORMANCE
Signal/Noise Ratio: >110 dB "A" weighted
THD + Noise: <0.004% 22 kHz filter
Interchannel Crosstalk: <-100 dB
Intermodulation Distortion: <0.006%
Frequency Response: ±0.1 dB
DC Offset: <± 50 mV
De-emphasis: 50/15 µs automatic
Electrical Length: 650 µs
Power: <6 W
Operating Temperature: 0 to 45°C
Humidity: 10% to 90% noncondensing

INDICATORS & CONTROLS
Indicators: Sample rate, emphasis detected, fault, power, communication active, configuration, remote override
Controls: Fine and course gain 10 operation mode (normal, channel swap, phase invert, channel sum, tone)
Remote: All indicators & controls via Ethernet

ORDERING INFORMATION

2020DAC
4 Channel Audio D-to-A Converter

2020DACMAN
Product Manual

2000T1D
1RU frame, dual redundant P/S

2000T1DN
1RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000T3
3RU frame single P/S

2000T3N
3RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000FAN
Fansled for 3RU Frame

2000EMI
Blank rear modules

NETC2MGR
NetCentral II Manager

2030RDA SD RECLOCKING DISTRIBUTION AMPLIFIER

FEATURES

- Nine outputs
- Automatic data rate detection
- Reclocks at 143, 177, 270 or 360 Mb/s
- Distributes transport streams in by-pass mode
- Easy upgrade to HDTV distribution
- Auto equalizing up to 300 m
- Supports networked control & monitoring

2030RDA SD Reclocking Distribution Amplifier

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The 2030RDA offers basic reclocking distribution of all standard definition digital video signals. All outputs are non-inverting to allow distribution of compressed signals such as SMPT310M and DVB-ASI at data rates down to 4 Mb/s in the bypass mode. An added feature is the interface to our unique networked control & monitor system so you can keep track of your signals remotely from your office or monitoring station.

All possible adjustments to this card can be performed directly on the module. If a 2000NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 2000 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.

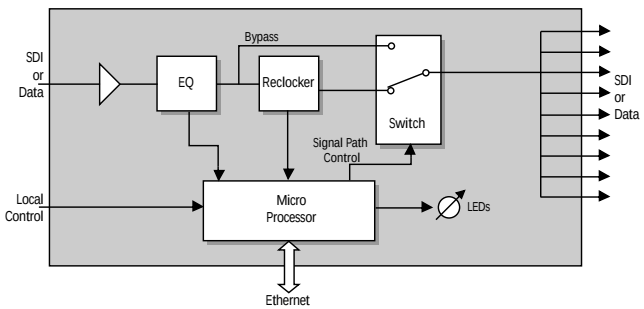
SPECIFICATIONS

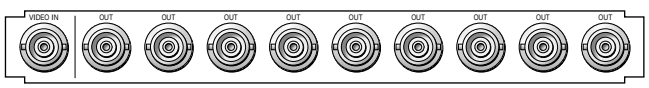
INPUT
Signal Type: Serial digital (SMPTE 259M A, B, C, & D)
Connector: 75 Ω BNC
Return Loss: >15 dB (up to 360 Mb/s)
Automatic Cable Equalizer: <300 meters

OUTPUT
Signal Type: Serial digital (SMPTE 259M A, B, C, & D)
Number of Outputs: 9
Connector: 75 Ω BNC
Return Loss: >15 dB (up to 360 Mb/s)

PERFORMANCE
Reclocking Data Rates: 143, 177, 270, 360 Mb/s
Operating Temperature: 0 to 45ºC
Humidity: 10% to 90% noncondensing

INDICATORS & CONTROLS
Indicators: Video present, data rate, bypass, fault, power, communication active, configuration, remote override
Controls: Bypass reclocking
Remote: All indicators & controls via Ethernet





2030RDA SD Reclocking Distribution Amplifier – Rear panel

ORDERING INFORMATION

2030RDA
SD Reclocking Distribution Amplifier

2030RDAMAN
Product Manual

2000T1D
1RU frame, dual redundant P/S

2000T1DN
1RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000T3
3RU frame single P/S

2000T3N
3RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000FAN
Fansled for 3RU Frame

2000EMI
Blank rear modules

NETC2MGR
NetCentral II Manager

2040RDA WIDEBAND RECLOCKING DISTRIBUTION AMPLIFIER

FEATURES

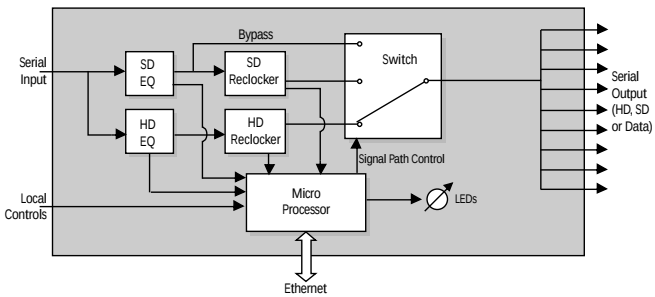
- Nine outputs
- Hot-swappable from the front
- Automatic line and data rate detection
- Reclocks at 143, 177, 270, 360 Mb/s or 1.5 Gb/s
- Distributes transport streams in by-pass mode
- Auto equalizing up to 100m for HD, 300m for SD
- Supports networked control & monitoring

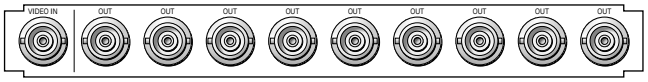
2040RDA WideBand Reclocking Distribution Amplifier

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The 2040RDA provides unmatched HDTV distribution density with nine non-inverting outputs. It's a future-proof investment with its auto-detect and reclocking capability at all SD and HD data rates. And the reclocker can be bypassed to distribute compressed signals down to 4 Mb/s. One of its best features is that, like any analog or SDI DAs you may have, the 2040RDA can be removed from the front of the frame without powering down and without removing a single cable from the rear.

All possible adjustments to this card can be performed directly on the module. If a 2000NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 2000 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.





2040RDA Wideband Reclocking Distribution Amplifier – Rear panel

SPECIFICATIONS

INPUT
Signal Type:
Reclock mode: SMPTE 292M, 259M
By-pass mode: SMPTE 310M, DVB-ASI
Connector: 75 Ω BNC
Return Loss: >15 dB to 1.5 GHz
Automatic Cable Equalizer:
<100 meters for HD
<300 meters for SD

OUTPUT
Signal Type:
Reclock Mode: SMPTE 240M, 259M, 274M , 296M
By-pass Mode: SMPTE 310M, DVB-ASI
Number of Outputs: 9
Connector: 75 Ω BNC
Return Loss: >15 dB to 1.5 GHz

PERFORMANCE
Reclock Data Rates:
143/177/270/360 Mb/s, 1.5 Gb/s
By-pass Data Rates:
4 Mb/s – 1.5 Gb/s
Operating Temperature:
0 to 45°C
Humidity: 10% to 90% noncondensing

INDICATORS & CONTROLS
Indicators: Video present, data rate, bypass, fault, power, communication active, configuration, remote override
Controls: Bypass reclocking
Remote: All indicators and controls via Ethernet

ORDERING INFORMATION

2040RDA
Wideband Reclocking Distribution Amplifier

2040RDAMAN
Product Manual

2000T1D
1RU frame, dual redundant P/S

2000T1DN
1RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000T3
3RU frame single P/S

2000T3N
3RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000FAN
Fansled for 3RU Frame

2000EMI
Blank rear modules

NETC2MGR
NetCentral II Manager

2041EDA WIDEBAND REAR EQUALIZING DISTRIBUTION AMPLIFIER

FEATURES

- Eight outputs
- Distributes 4 Mb/s to 1.5 Gb/s
- Auto equalizing up to 100m
- Supports networked control & monitoring

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The 2041EDA is our most economical HDTV Distribution Amplifier. It resides as a rear card, requiring no front card and provides basic distribution from 4 Mb/s up to 1.5 Gb/s. It's ideal for monitoring or distribution of recently reclocked signals. All outputs are non-inverting to allow distribution of compressed signals such as SMPTE310M and DVB-ASI.

All possible adjustments to this card can be performed directly on the module. If a 2000NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 2000 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.

2041EDA WideBand Rear Equalizing Distribution Amplifier

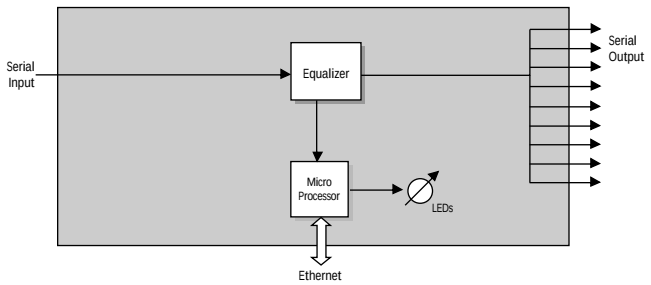
SPECIFICATIONS

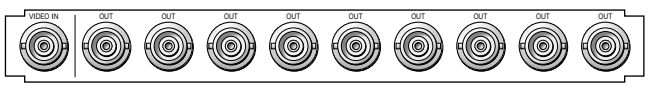
INPUT
Signal Type: SMPTE 259M, 292M, 310M, DVB-ASI
Connector: 75 Ω BNC
Return Loss: >15 dB to 1.5 GHz
Automatic Cable Equalizer: <100 meters

OUTPUT
Signal Type: SMPTE 240M, 259M, 274M , 296M , 310M, DVB-ASI
Number of Outputs: 8
Connector: 75 Ω BNC
Return Loss: >15 dB to 1.5 GHz

PERFORMANCE
Data Rates: 4 Mb/s to 1.5 Gb/s
Operating Temperature: 0 to 45°C
Humidity: 10% to 90% noncondensing

INDICATORS
Indicators: Signal present, fault, power, communication active, configuration
Remote: All indicators via Ethernet





2041EDA Wideband Rear Equalizing Distribution Amplifier – Rear panel

ORDERING INFORMATION

2041EDA
Wideband Rear Equalizing Distribution Amplifier

2041EDAMAN
Product Manual

2000T1D
1RU frame, dual redundant P/S

2000T1DN
1RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000T3
3RU frame single P/S

2000T3N
3RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000FAN
Fansled for 3RU Frame

2000EMI
Blank rear modules

NETC2MGR
NetCentral II Manager

2041RDA WIDEBAND REAR RECLOCKING DISTRIBUTION AMPLIFIER

FEATURES

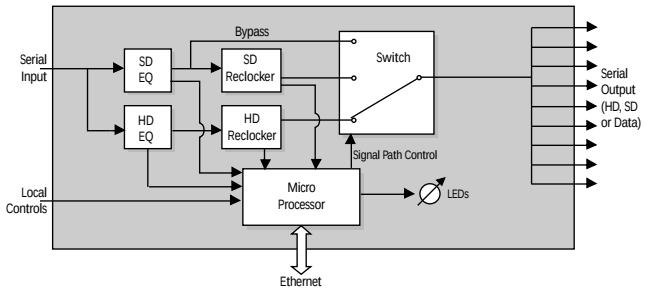
- Eight outputs
- Automatic line and data rate detection
- Reclocks at 143, 177, 270, 360 Mb/s or 1.5 Gb/s
- Distributes transport streams in by-pass mode
- Auto equalizing up to 100m for HD, 300m for SD
- Supports networked control & monitoring

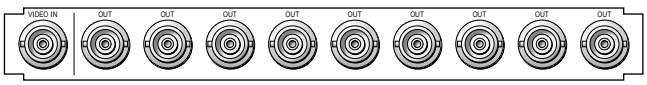
For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

2041RDA WideBand Rear Reclocking Distribution Amplifier

The 2041RDA provides a lower-cost version of the full-featured 2040RDA as a rear card. The primary difference between the two modules is that the 2041RDA resides in the rear of the frame behind the midplane, making it a little more difficult to remove if needed. We decided to let you, the customer, decide how important hot-swap capability vs. cost is for your application by providing both options.

All possible adjustments to this card can be performed directly on the module. If a 2000NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 2000 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.





2041RDA Wideband Rear Reclocking Distribution Amplifier – Rear panel

SPECIFICATIONS

INPUT
Signal Type:
Reclock Mode: SMPTE 292M, 259M
By-pass Mode: SMPTE 310M, DVB-ASI
Connector: 75 Ω BNC
Return Loss: >15 dB to 1.5 GHz
Automatic Cable Equalizer:
HD: <100 meters
SD: <300 meters

OUTPUT
Signal Type:
Reclock Mode: SMPTE 240M, 259M, 274M , 296M
By-pass Mode: SMPTE 310M, DVB-ASI
Number of Outputs: 9
Connector: 75 Ω BNC
Return Loss: >15 dB to 1.5 GHz

PERFORMANCE
Reclock Data Rates: 143/177/270/360 Mb/s, 1.5 Gb/s
By-pass Data Rates: 4Mb/s – 1.5 Gb/s
Operating Temperature: 0 to 45°C
Humidity: 10% to 90% noncondensing

INDICATORS & CONTROLS
Indicators: Video present, fault, power, communication active, configuration, remote override
Controls: By-pass reclocking
Remote: All indicators and controls via Ethernet

ORDERING INFORMATION

2041RDA
Wideband Rear Reclocking Distribution Amplifier

2041RDAMAN
Product Manual

2000T1D
1RU frame, dual redundant P/S

2000T1DN
1RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000T3
3RU frame single P/S

2000T3N
3RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000FAN
Fansled for 3RU Frame

2000EMI
Blank rear modules

NETC2MGR
NetCentral II Manager

2042EDA DUAL WIDEBAND EQUALIZING DISTRIBUTION AMPLIFIER

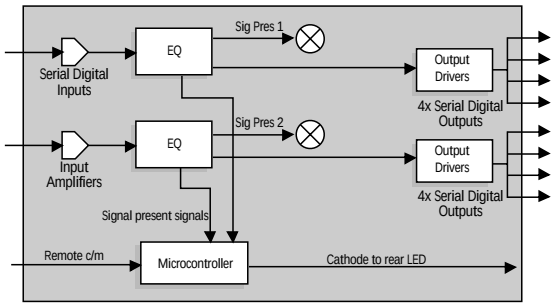
FEATURES

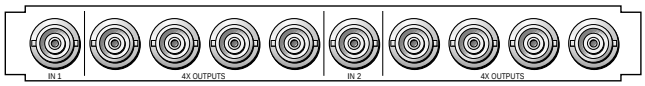
- Supports all 259M (A,B,C,D) SD formats, 292M HD formats, 310M, DVB-ASI
- Auto equalizing up to 100 meters of 1694A or equivalent cable for HD and SD signals
- All outputs are non-inverting to allow distribution of compressed signals such as SMPT310M and DVB-ASI at data rates down to 4 Mb/s.
- The 2042EDA is also the ideal DA for HD router expansion.
- 2 sets of 4 Outputs (2 DA's per module)
- Housed in the same frame with other 2000 audio and video modules
- Remote control via Ethernet frame interface

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The 2042EDA is a cost effective wideband distribution amplifier for the limited output requirements of HD, enabling up to twenty-four 1x4 DA's to be housed in a single 3RU frame. The 2042EDA supports all 259M (A,B,C,D) SD formats, 292M HD formats, 310M, DVB-ASI all outputs are non-inverting to allow distribution of compressed signals such as SMPT310M and DVB-ASI at data rates down to 4 Mb/s.

All possible adjustments to this card can be performed directly on the module. If a 2000NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 2000 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.





2042EDA Dual Wideband Equalizing Distribution Amplifier - Rear Panel

2042EDA Dual Wideband Equalizing Distribution Amplifier

SPECIFICATIONS

INPUT

SIGNALTYPE:
Supports all 259M (A,B,C,D) SD formats, 292M HD formats, 310M, DVB-ASI at data rates down to 4Mb/s.

INPUT IMPEDANCE:
75 Ω

SIGNAL LEVEL:
SDI 800mVp-p + 10% max.

SAMPLE RATE:
32kHz, 44.1kHz, 48KHz or 96kHz

INPUT RETURN LOSS:
>15dB 0.004 to 1.5GHz

EQUALIZATION:
>100M HD and SD signals

CONNECTOR TYPE:
75 Ohm BNC

OUTPUT SIGNAL

SIGNAL TYPE:
Supports all 259M (A,B,C,D) SD formats, 292M HD formats, 310M, DVB-ASI at data rates down to 4Mb/s.

NUMBER OF OUTPUTS:
2 sets of 4 Outputs (2 DA's per module)

SIGNAL LEVEL:
SDI 800mVp-p + 10% max.

RETURN LOSS:
>15dB 0.004 to 1.5GHz

CONNECTOR TYPE:
4 BNC per channel (75 Ω)

OUTPUT RETURN LOSS:
>15dB (100kHz-6MHz)

JITTER:
<0.2 UI

PERFORMANCE

RISE AND FALL TIME:
160-270ps between 20-80% DC Offset:<± 1mV

ELECTRICAL LENGTH:
22 ns + 1ns

POWER CONSUMPTION:
< 7W

OPERATING TEMPERATURE:
0 to 45º C

HUMIDITY RANGE:
0 to 90% non condensing

INDICATORS & CONTROLS

INDICATORS:
Internal fault, communications active, configuration, signal present, power

REMOTE:
All indicators and controls via Ethernet

ORDERING INFORMATION

2042EDA
Dual Wideband Equalizing Distribution Amplifier

2042EDAMAN
Product manual

2000T1D
1RU frame, dual redundant P/S

2000T1DN
1RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000T3
3RU frame single P/S

2000T3N
3RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000FAN
Fansled for 3RU Frame

2000EMI
Blank rear modules

NETC2MGR
NetCentral™ II Manager

2090MDC HDTV MONITORING DOWNCONVERTER

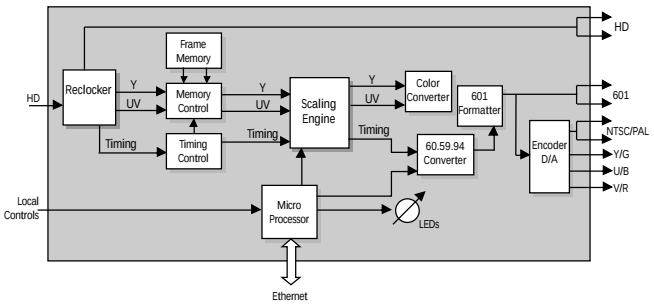
FEATURES

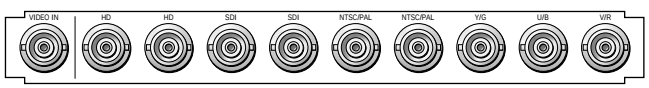
- 1035i, 1080i and 720p line rates
- 50, 59.94 and 60 Hz field/frame rates
- Two HD outputs
- Auto format detection
- NTSC/PAL, SDI and YUV/RGB downconverted outputs
- Auto equalizing up to 100m
- Aspect ratio conversion
- Supports networked control & monitoring

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The 2090MDC builds on the success of our M9603HD HDTV Monitoring DA. These products extend the life of your monitor investments to display HDTV on just about every type of video display device available including composite analog, component analog and SDTV. We've improved the aspect ratio control to allow variable cropping and remote control. We've also added additional data rates to support 50 & 60 Hz applications.

All possible adjustments to this card can be performed directly on the module. If a 2000NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 2000 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.





2090MDC HDTV Monitoring Downconverter – Rear panel

2090MDC HDTV Monitoring Downconverter

SPECIFICATIONS

INPUT
Signal Type: 1.5 Gb/s serial digital (SMPTE 292M)
Connector: 75 Ω BNC
Frame rate: 50, 59.94, 60 Hz
Signal Level: 800 mV ±10%
Return Loss: >15 dB to 1.5 GHz

HD OUTPUT
Signal Type: 1.5 Gb serial digital (SMPTE 240M, 274M and 296M)
Connector: 75 Ω BNC
Number of outputs: 2
Signal Level: 800 mV ±10%
Return Loss: >15 dB to 1.5 GHz

SD OUTPUT
Signal Type: SMPTE259M serial 10 bits 4:2:2 component video
Connector: 75 Ω BNC
Number of outputs: 2
Signal Level: 800 mV ±10%
Return Loss: >15 db up to 270 MHz

ANALOG COMPOSITE OUTPUT
Signal Type: SMPTE 170M (NTSC), CCIR-624 (PAL)
Connector: 75 Ω BNC
Differential Gain: 0.3%
Differential Phase: 0.4°
Luminance Nonlinearity: ±1%
Chroma Nonlinear Gain: ±1.2%
Chroma Nonlinear Phase: ±0.3°
Frequency Respnse – Luma: ±0.1 dB @ 5.5 MHz
Frequency Response – Chroma: -2 dB @ 1.3 MHz
Return Loss: >40 dB to 5.5 MHz

ANALOG COMPONENT OUTPUT
Signal Type: SMPTE 253M (Component analog video)
Connector: 75 Ω BNC
Number of outputs: 1 set
Return Loss: >40 dB to 5.5 MHz

PERFORMANCE
Aspect Ratio Modes: Letter-Box, Anamorphic Squeeze, Full Height, Zoom
Operating Temperature: 0 to 45°C
Humidity: 0 to 90% noncondensing
Power: <14 W

INDICATORS & CONTROLS
Indicators: Video present, frame rate, standard, fault, power, communication active, configuration, remote override
Controls: Aspect ratio mode, picture position, zoom
Remote: All indicators & controls via Ethernet

ORDERING INFORMATION

2090MDC
HD Monitoring Downconverter

2090MDCMAN
Product Manual

2000T1D
1RU frame, dual redundant P/S

2000T1DN
1RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000T3
3RU frame single P/S

2000T3N
3RU frame, dual redundant P/S Ethernet I/F (2000NET)

2000FAN
Fansled for 3RU Frame

2000EMI
Blank rear modules

NETC2MGR
NetCentral II Manager

8900 SERIES

FEATURES

- High density with 10 slots in 2RU frame
- 10 BNCs per slot for ample I/O
- 100 W power supplies accomodate all module combinations
- Ethernet interface for remote control & monitoring
- Self-contained cooling fans in 8900TF front cover require no additional fan units
- Temperature controlled fan speeds to reduce fan noise
- Passive loopthrough inputs
- Frame status LEDs on front cover

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8900 SERIES

Built on the success of our popular 8900 Series Distribution Amplifiers, the enhanced 8900 Series frames offer higher power capacity with a 100 watt power supply and an optional Ethernet interface for centralized remote monitoring and control. With the increased power and cooling capacity the 8900 Series can support any combination of modules – even a full complement of our highest power modules. The 8900 Series now provides a one frame solution for your "Transition to Digital."

All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 8900 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.

8900 Frame

ORDERING INFORMATION

FRAMES

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8500T2-DC48
2 RU frame w/48 VDC power supply (telecom applications, supports analog distribution amplifiers only)

POWER SUPPLIES

8900PSX – Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8500PS-DC48 – Redundant power supply for 8500T2-DC48

MISCELLANEOUS

8900NET – Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

8900FN – Upgrade from 8900TX to 8900TFN

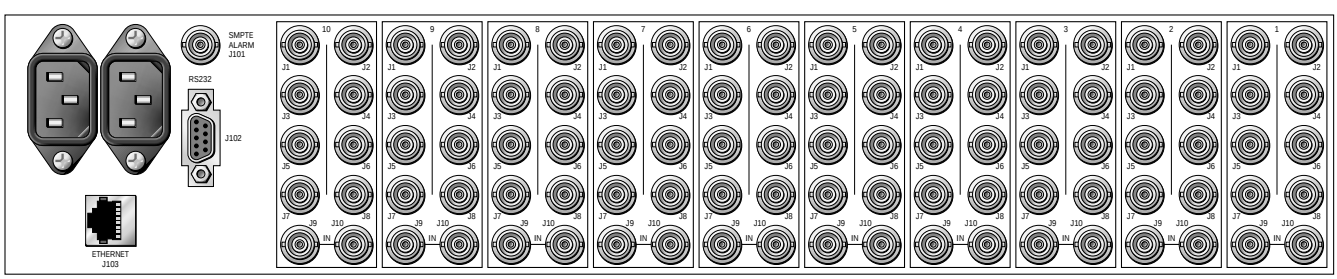
8900FAN – Fan front cover retrofit kit for the 8900TX

8500EXT – Extender board for all 8500/8800/8900 modules

8900TXMAN – Product Manual for all 8900 frames

8900NETMAN – Product Manual for 8900NET

NETC2MGR
NetCentral II Manager



8900 Frame – Rear Connectors.

8900NET NETWORK INTERFACE MODULE

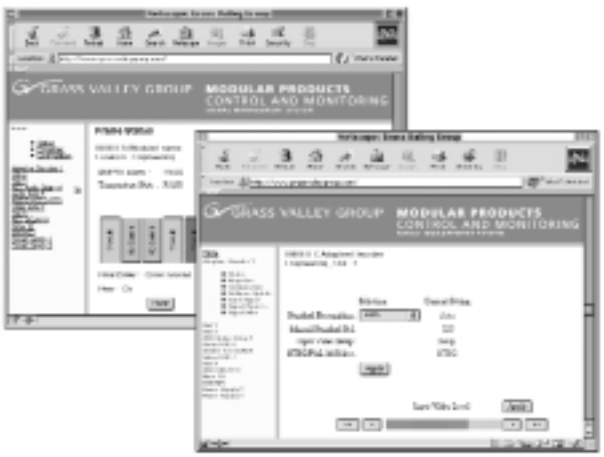
FEATURES

- Choice of user interfaces: computer GUI or control panel
- Open, industry standard protocols (SNMP, HTTP, TCP/IP)
- Web browser interface
- Unlimited system expansion
- Easy upgrade from local to remote control & monitoring
- No need to upgrade network I/F card when new modules are added to the series
- Compatible with 8900 series frames
- Feature enhancements downloadable over the internet

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

As with most industries, the broadcast, cable and video production industries are under fire to improve efficiency. Our 8900NET modular control and monitoring system will help you do that with an open, robust and extensible network solution. We've designed our system using industry standard, open protocols and offer a choice of three different user interfaces: web browser, SNMP and a easy-to-navigate control panel.

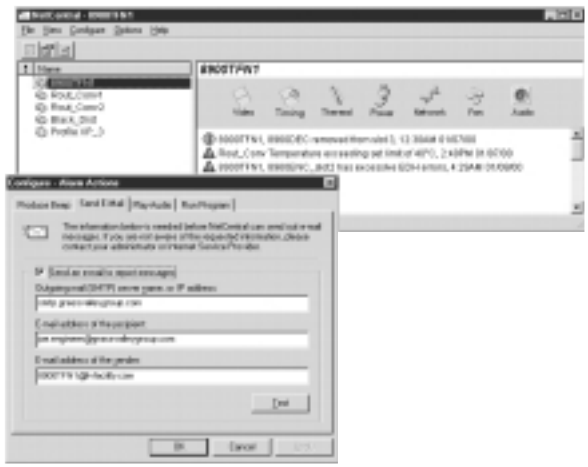
The web browser interface comes standard with our 8900NET Network Interface Module. The web server is actually right on the card. It creates web pages based on the user's requests and sends them out over a standard ethernet TCP/IP network. You don't need to buy any expensive software to go on your PC. Just use a standard web browser such as Internet Explorer™ or Netscape™.



Browser GUI

VTECS 1

8900NET Network Interface Module



SNMP GUI

The SNMP interface for powerful monitoring and datalogging functionality is where improvements in efficiency really pay off. The SNMP interface constantly watches your equipment for you. If there is a problem, such as excessive frame temperature, failed fan or power supply or loss of video, it will alert you by sending a message to an SNMP manager, which can in turn, datalog the message or send out emails, call pagers or cell phones. The conditions which would generate such an alarm are user configurable. GVG offers a simple-to-use SNMP manager called NetCentral™ II. NetCentral II is specifically designed to monitor all GVG products which support SNMP. Our SNMP enabled products can also interface to other industry-standard SNMP managers such as HP OpenView™ for more general purpose applications.

The control panel, which we've partnered with Videoframe™, also communicates over the same Ethernet/TCP/IP network and can be configured to address any number of frames on the network. It's designed with an easy-to-use interface so you won't need to drill down multiple layers of controls to get to the parameter you want to change. Typical applications include correcting lip sync error or video gain on incoming feeds.

ORDERING INFORMATION

8900NET
Ethernet interface card

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900NET MAN - Product Manual

8900TF MAN - Product Manual

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8900FSS 4:2:2 FRAME SYNCHRONIZER/DELAY SUBMODULE

FEATURES

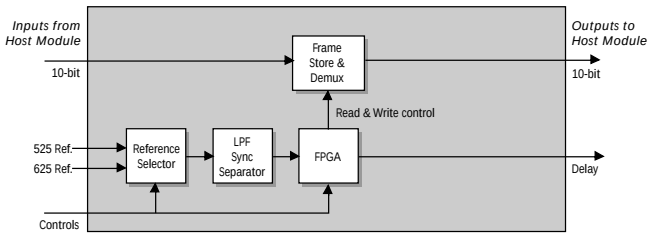
- 10-bit signal processing
- Full frame output phasing for total control of output timing
- Compatible with 8960DEC adaptive decoder and 8960ENC
- Audio delay control signal to drive audio delay
- Offers up to full frame of delay
- Black or freeze on loss of video

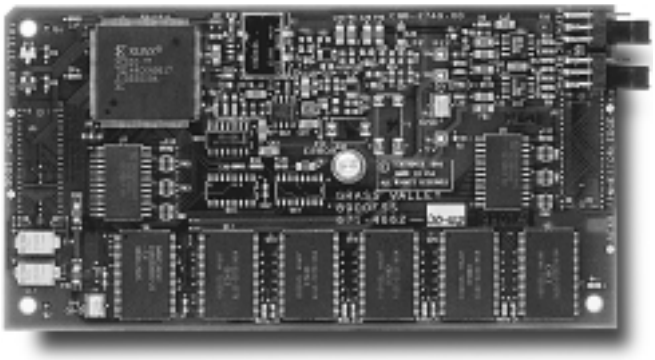
For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8900FSS 4:2:2 FRAME SYNCHRONIZER/DELAY SUBMODULE

The 8900FSS is a low cost solution to digital system timing. Full frame synchronization and delay are available by connecting the 8900FSS to a host module such as the 8960DEC Decoder. All user controls are resident on the host module and include output phasing/delay and freeze frame options. It operates as a companion to the popular 8916AES Auto-tracking Delay DA for audio synchronization applications. The 8900FSS requires less than 2.5 W so that even when coupled to the 8960DEC, up to ten host/submodules can be accommodated in the 8900 Frame when the front cover fan is installed.

All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 8900 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.





8900FSS 4:2:2 Frame Synchronizer/Delay Submodule

SPECIFICATIONS

INPUT
Signal Type: 10-bit parallel 4:2:2 component video
Connector Type: 40-pin connector to host module

REFERENCE INPUT
Number of Inputs: 2
Signal Type: SMPTE170M (525 lines) or CCIR624 (625 lines)
Connector Type: 40-pin connector to host module

OUTPUT
Signal Type: 10-bit parallel 4:2:2 component video
Connector Type: 40-pin connector to host module

PERFORMANCE
Signal Path: 10-bits
Phasing/Delay: 1 video frame
Phase/Delay Increment: 37 ns
Minimum Delay: 1.5 µs
Power Consumption: <2.5 W
Operating Temperature: 0 – 45°C ambient
Relative Humidity: 0 to 90% noncondensing

INDICATORS/CONTROLS
User Controls: Horizontal phase/delay, vertical phase/delay, freeze mode
Remote: All controls

ORDERING INFORMATION

8900FSS
4:2:2 Frame Synchronizer/Delay Submodule

8900FSSMAN
Product Manual

8960DEC
NTSC/PAL to SDI Decoder

8960ENC
SDI to NTSC/PAL Encoder

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

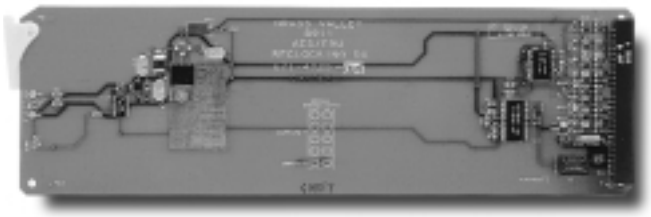
NETC2MGR
NetCentral™ II Manager

8911 AES/EBU RECLOCKING DISTRIBUTION AMPLIFIER

FEATURES

- Loopthrough input
- Eight outputs
- 10 module density in 2 RU 8900 frame
- Accepts 48, 44.1 and 32 kHz

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.



8911 AES/EBU Reclocking Distribution Amplifier

8911 AES/EBU Reclocking Distribution Amplifier

The 8911 extends our popular distribution line to digital audio. The amount of digital audio is ever increasing as studios and broadcast facilities transition to digital transmission. The 8911 offers a low cost method of reclocking AES/EBU digital audio signals to insure signal integrity. Best of all, the 8911 fits into our popular 8900 series frames which boasts passive loopthrough inputs, high density and a wide range of distribution and format conversion functions.

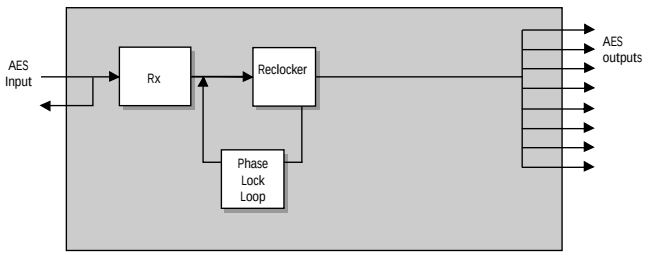
SPECIFICATIONS

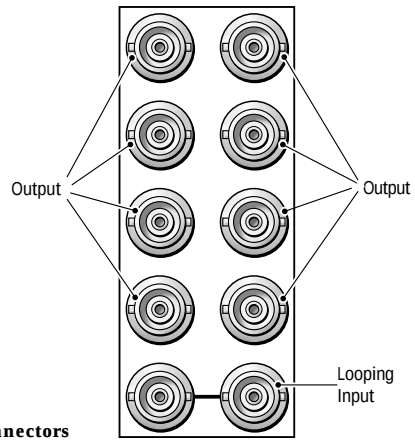
INPUT
Number of Inputs: 1 Loopthrough
Connector: 75 Ω BNC
Standard: AES3id (1995) and SMPTE 276M
Return Loss: >25 dB (0.1 to 6 MHz)

OUTPUT
Number of Outputs: 8
Connector: 75 Ω BNC
Standard: AES3id (1995) and SMPTE 276M
Return Loss: >25 dB (0.1 to 6 MHz)

PERFORMANCE
Sample Rates: 48 kHz, 44.1 kHz and 32 kHz
Power Consumption: 2 W
Operating Temperature: 0°C to 45°C ambient
Relative Humidity: 0 to 90% noncondensing

INDICATORS/CONTROLS
Indicators: Input audio present, Power





8911 Rear Connectors

ORDERING INFORMATION

8911
AES/EBU Reclocking Distribution Amplifier

8911MAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8914 DUAL AES/EBU DELAY DISTRIBUTION AMPLIFIER

FEATURES

- Two full function delays on a single board yield high density
- Up to 0.5 second delay in 2 ms increments
- Four outputs on channel one, three outputs on channel two
- Up to 20 AES/EBU delays in a 2RU 8900 frame

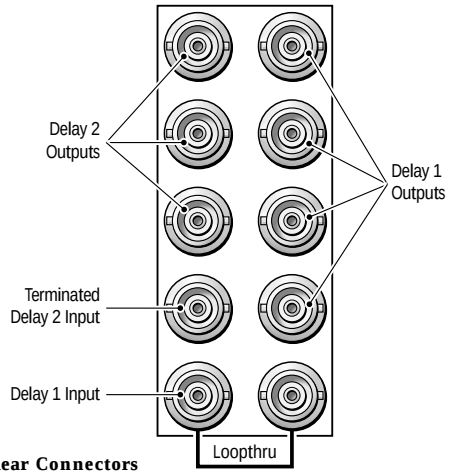
For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8914 Dual AES/EBU Delay Distribution Amplifier

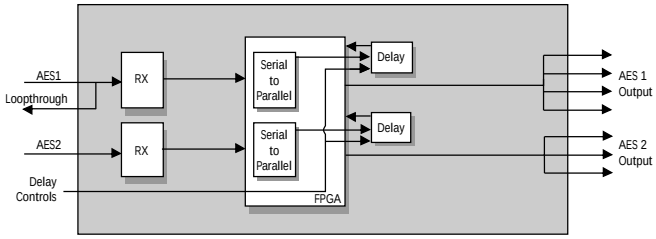
8914 DUAL AES/EBU DELAY DISTRIBUTION AMPLIFIER

As the transition to digital video and audio accelerates, there is an increased need to delay the audio associated with broadcast video due to the relatively large processing times associated with DVEs and Switchers. The 8914 provides a low cost and easy to use solution to the lip sync errors associated with these large delays. With space considerations in mind, we've included two fully controllable delay paths on a single board allowing up to 20 delays in a 2RU frame. If you want more distribution instead, the first channel can be passively looped to the second channel for seven outputs. The 8914 is also a full featured reclocking distribution amplifier which fits in our popular 8900 series frame.

All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone.



8914 Rear Connectors



SPECIFICATIONS

INPUT
Number of Inputs:
Channel 1: 1 loopthrough
Channel 2: 1 terminated

Connectors: 75 Ω BNC

Standard: AES3id: 1995 and SMPTE 276M

AES Frame Rates: 32, 44.1 or 48 kHz

Return Loss: > 25 dB (0.1 to 6 MHz)

OUTPUTS
Number of outputs:
Channel 1: 4
Channel 2: 3

Connectors: 75 Ω BNC

Standard: AES3id: 1995 and SMPTE 276M

Return Loss: > 25 dB (0.1 to 6 MHz)

Intrinsic Jitter: < 6 ns

PERFORMANCE
Sample Rates: 32, 44.1 or 48 kHz

Delayed Outputs:
Minimum: 1.2 ms
Maximum: 510 ms (127.5 AES Blocks)

Delay Increments: 1 AES Block (2 ms)

Power Consumption: 3.5 W

INDICATORS/CONTROLS
Indicators:
Input video present, input data rate Power

Controls:
Delay: Two 16 position rotary switches

ORDERING INFORMATION

8914
Dual AES/EBU Delay Distribution Amplifier

8914MAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8916 AES/EBU AUTO-TRACKING DELAY DISTRIBUTION AMPLIFIER

FEATURES

- Up to 1/2 second delay in 2 ms increments
- Auto-tracks frame sync delays (8900FSS, 8981FS)
- Seven outputs
- Housed in the same frame with other 8900 audio and video modules
- Remote control via Ethernet frame I/F

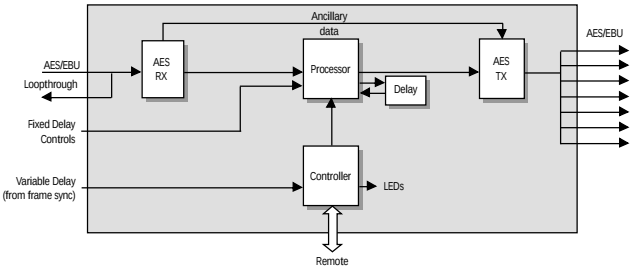
8916 AES/EBU Auto-Tracking Delay Distribution Amplifier

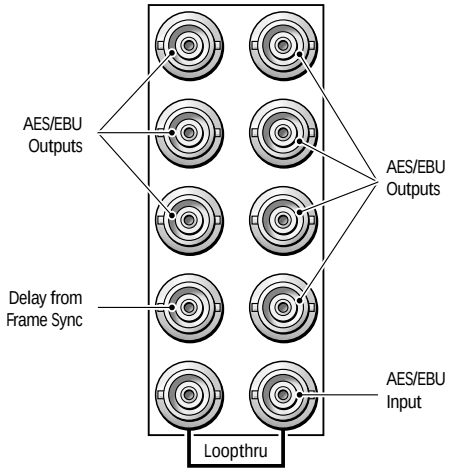
For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8916 AES/EBU AUTO-TRACKING DELAY DISTRIBUTION AMPLIFIER

The 8916 delays digital audio to adjust for lip sync errors. It offers two forms of delay, which are summed: a fixed delay up to .5 sec and a variable delay based on the signal input from one of our video frame synchronizers. Key applications include adjusting for a large fixed lip sync error while continuous adjusting audio delay to match video delay created from a frame sync.

All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone.





8916 Rear Connectors

SPECIFICATIONS

INPUTS
Standard: AES3id:1995 and SMPTE 276M
Connector: BNC loopthrough
Return Loss:
>25 dB (0.1 to 6 MHz)
Transformer coupling on input eliminates common mode noise

OUTPUTS
Standard: AES3id:1995 and SMPTE 276M
Number of Outputs: 7
Connector: 75 Ω BNC
Return loss:
>25 dB (0.1 to 6 MHz)
Intrinsic Jitter: <6 ns

PERFORMANCE
Sample Rates: 32 kHz, 44.1 kHz, 48 kHz
Delayed Outputs:
Minimum: 3 ms @ 32 kHz, 2 ms @ 44.1 and 48 kHz
Maximum: 510 ms
Delay Increments: 2 ms
Power usage: 3.5 W
Operating temp: 0 to 45°C
Humidity Range: 0 to 90% non-condensing

INDICATORS & CONTROLS
Indicators:
Input signal present, input data rate, fault, tracking, power, communication active
Controls: Output delay
Remote: All indicators and controls via frame Ethernet

ORDERING INFORMATION

8916
AES/EBU Auto-tracking Delay Distribution Amplifier

8916MAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8920ADC AUDIO A-TO-D CONVERTER

FEATURES

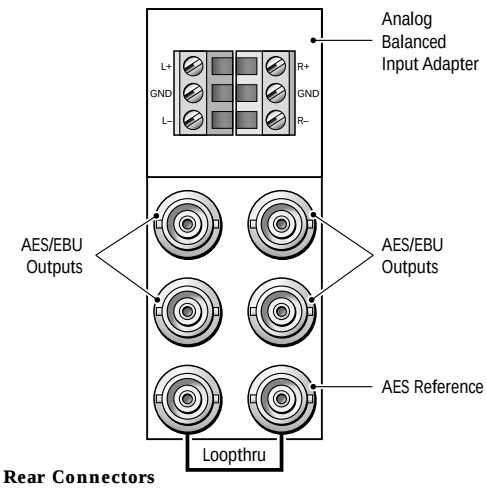
- 24-bits resolution
- Wide range of output modes (swap, invert, sum, tones)
- AES/EBU loopthrough reference input
- 48 kHz sampling rate
- Terminal block input via adapter
- Independent input level control from +12 dBu to +28 dBu
- Housed in the same frame with other 8900 audio and video modules
- Remote control via Ethernet frame I/F

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

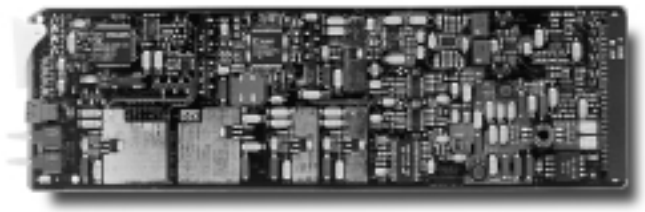
8920ADC AUDIO A-TO-D CONVERTER

Convert analog audio to digital with the 8920ADC. Its various modes allow you to modify the outgoing signal such as channel swapping, channel summing, phase inversion and more. The remote capability supports mode selection and input gain control.

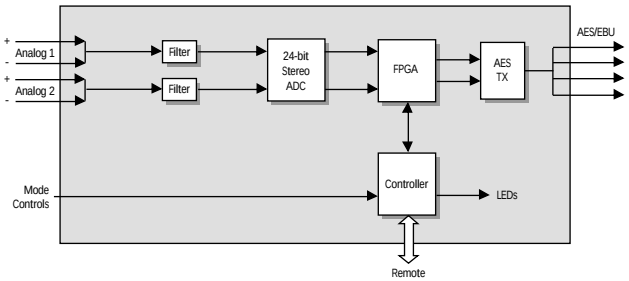
All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone.



8920ADC Rear Connectors



8920ADC Audio A-to-D Converter



SPECIFICATIONS

ANALOG INPUT SIGNAL
Number of Inputs: Stereo pair
Connector Type: Terminal block
Input Impedance: > 10 kΩ
Input Level: +12 to +28 dBu
Sampling Rate: 48 kHz

AES REFERENCE INPUT
Signal Type:
AES3id transformer coupled
Number of Inputs: 1 loopthrough
Input Return Loss:
>15 dB (100 kHz to 10 MHz)
Maximum Jitter: < 200 ps RMS

OUTPUT
Number of Outputs: 4
Signal Type: AES3id – 1992
Connector Type: 75 Ω BNC

PERFORMANCE
Sampling Rate: 48 kHz
Signal/Noise Ratio: >102 dB unweighted, >105 dB "A" weighted
Frequency Response: ±0.05 dB 20 Hz to 20 kHz
Interchannel Crosstalk:
<-100 dB, 20 Hz to 20 kHz
Power Consumption: < 4.2 W
Operating Temperature:
0 to 45°C
Humidity Range:
0 to 90% noncondensing

INDICATORS & CONTROLS
Indicators:
Input present, ref. present, power, clipping, fault, communication active
Controls:
Operation modes (normal, channel swap, phase invert, channel sum, tone), Input gain
Remote: All controls & indicators via Ethernet

ORDERING INFORMATION

8920ADC
Audio A-to-D Converter

8920ADCMAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8920ADT AUDIO A-TO-D CONVERTER WITH AUDIO TRACKING DELAY

FEATURES

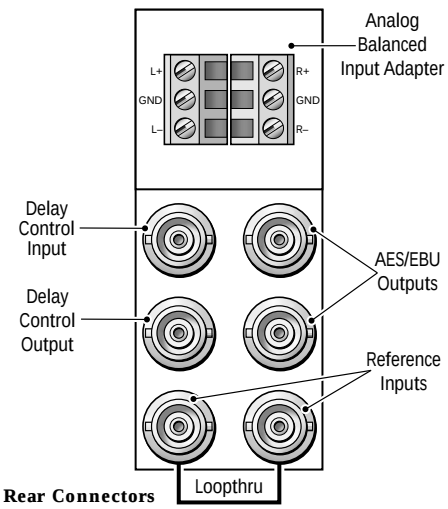
- 24-bits resolution
- 75 Ω or 110 Ω outputs
- Wide Range of output modes (swap,invert,sum,tones)
- Loopthrough reference input (video, AES3id, AES word clock)
- 48KHz sampling rate
- Terminal block input via adapter
- Up to 1.365 second delay in 2 ms increments
- Auto-tracks frame sync delays (8900FSS, 8981FS)
- Housed in the same frame with other 8900 audio and video modules
- Remote control via Ethernet frame interface

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8920ADT AUDIO A-TO-D CONVERTER WITH AUDIO TRACKING DELAY

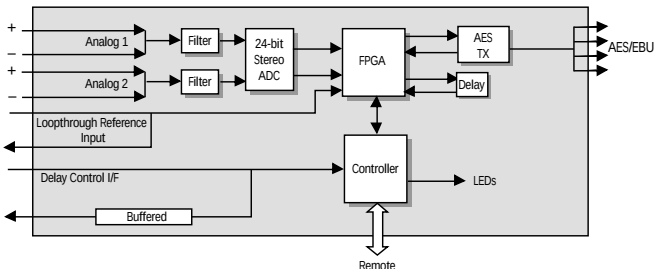
The 8920ADT takes the best features of our 8920ADC and 8916 and incorporates them into one cost effective, space saving module. It provides conversion of analog audio to digital audio with the capability to simultaneously adjust for lip sync errors. It offers two forms of delay which are summed—a fixed delay of up to 1.365 seconds and a variable delay based on a signal from one of our video frame synchronizers, enabling you to adjust for a large, fixed lip sync error while continuously adjusting audio delay to match the video delay created by the frame sync. The 8920ADT also provides various modes of controlling the output audio signal such as channel swapping, channel summing and phase inversion.

All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone.



8920ADT Rear Connectors

8920ADT Audio A-to-D Converter with Auto tracking Delay



SPECIFICATIONS

ANALOG INPUT SIGNAL
NUMBER OF INPUTS:
Stereo pair
CONNECTOR TYPE: Terminal block
INPUT IMPEDANCE: > 22K ohm
INPUT LEVEL: +0 to +30 dBu
SAMPLING RATE: 48 kHz
AES REFERENCE INPUT
SIGNAL TYPE: AES3ID-1992, Word Clock (48kHz sample rate), Video
NUMBER OF INPUTS:
1 Loopthrough
INPUT RETURN LOSS:
>90dB at 50/60Hz, >45dB to 20KHz
OUTPUT
SIGNAL TYPE: AES-3id-1992 (75 ohm), AES 3 (110 ohm)
NUMBER OF CHANNELS: 2
CONNECTORS: BNC (75ohm)
Terminal Block Adapter (110ohm)
PERFORMANCE
SIGNAL/NOISE RATIO:
>102dB, 20Hz to 20kHz
>105dB "A" weighted
THD+NOISE, SWEPT 20HZ TO 20KHZ
<0.005%, 20Hz to 20kHz, +24dBu
INTERCHANNEL CROSSTALK:
<-95dB, 20Hz to 20kHz
FREQUENCY RESPONSE:
+/- 0.05dB relative to 1kHz, 20Hz to 20kHz
DELAYED OUTPUTS:
Minimum:
Maximum:
DELAY INCREMENTS: 2 ms
POWER CONSUMPTION: < 6 W
OPERATING TEMPERATURE:
0 to 45 degrees C
HUMIDITY RANGE:
0 to 90% noncondensing
INDICATORS & CONTROLS
INDICATORS: Tracking, Level, remote override, power, communications active, CH1 & CH2 >-20dBFS, CH1 & CH2 >-0.5 dBFS clip level, internal fault, Ref locked, remote lock out
CONTROLS: Level, delay
REMOTE: All controls and indicators via Ethernet

ORDERING INFORMATION

8920ADT
Audio A-to-D Converter with Auto tracking Delay 75 Ω unbalanced outputs

8900CTB-02
Terminal Block adapter to convert 8920ADT from 75 Ω to 110 Ω

8920ADT-110
Audio A-to-D Converter with Auto tracking Delay 110 Ω Balanced outputs

8920ADT MAN
Product manual

8920DAC AUDIO D-TO-A CONVERTER

FEATURES

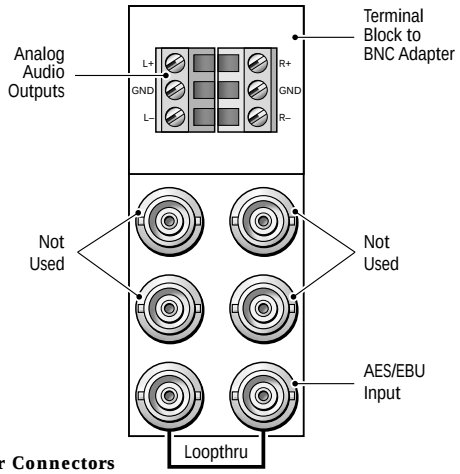
- 20 or 24-bit modes
- Wide range of output modes (swap, invert, sum, tones, silence)
- AES/EBU loopthrough input
- 32 to 48 kHz sampling rate with indicators at 32, 44.1 and 48 kHz
- Terminal block output via adapter
- Independent output level control from +14 dBu to +24 dBu
- >110 dB “A weighted” signal-to-noise ratio
- Housed in the same frame with other 8900 audio and video modules
- Remote control via Ethernet frame interface

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8920DAC AUDIO D-TO-A CONVERTER

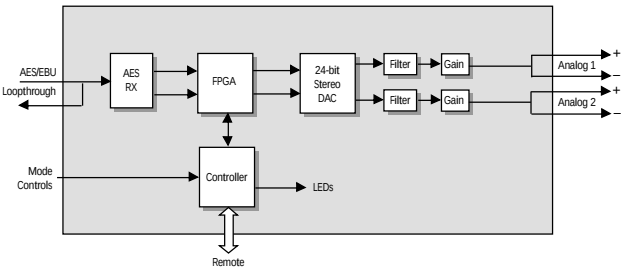
Convert analog audio to digital with the easy to use 8920DAC. Its various modes allow you to modify the outgoing signal such as channel swapping, channel summing, phase inversion and more. The remote capability supports mode selection and input monitoring. Typical applications include interfacing between digital and analog equipment such as speakers, audio switcher and routers.

All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone.



8920DAC Rear Connectors

8920DAC Audio D-to-A Converter



SPECIFICATIONS

INPUT
Type: AES3id (1992) – transformer coupled, balanced
Number of Inputs: 1 loopthrough
Connector: 75 Ω BNC
Common Mode Range: ±12 V pk DC -20 kHz
Input Signal Level Range: 200 mV to 12 V pk-pk
Sampling Rates: Any rate from 32-48 kHz with indicators at 32, 44.1 and 48kHz
Input Return Loss: >15 dB (100 kHz to 10 MHz)
Maximum Jitter: <200 ps RMS

OUTPUT
Number of Outputs: 1 stereo
Output Level: +14 to +24 dBu max
Output Impedance: 50 Ω Single ended, 100 Ω differential
Connector Type: Terminal block through BNC adapter board

PERFORMANCE
Signal/Noise Ratio: >107 dB unweighted 22 kHz filter >110 dB “A” weighted
Frequency Response: ±0.1 dB 20 Hz– 20 kHz @ 48 kHz sampling
THD + Noise: <0.004% @ 24 dBu
Quantization: 20 or 24-bit
Interchannel Crosstalk: <–100 dB, 20 Hz to 20 kHz
DC Offset: <±50 mV
Power Consumption: <3.1 W
Operating Temperature: 0 to 45°C
Humidity: 10 to 90% noncondensing
Nonoperating Temperature: –10 to 70°C

INDICATORS & CONTROLS
Indicators: Input data rates, power, de-emphasis, fault, remote overide communication active, configuration
Controls: Operation modes (normal, channel swap, phase invert, channel sum, tone). Output Gain
Remote: All Indicators & controls via frame Ethernet except gain

ORDERING INFORMATION

8920DAC
Audio D-to-A Converter

8920DACMAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8920MUX VIDEO/AUDIO MULTIPLEXER

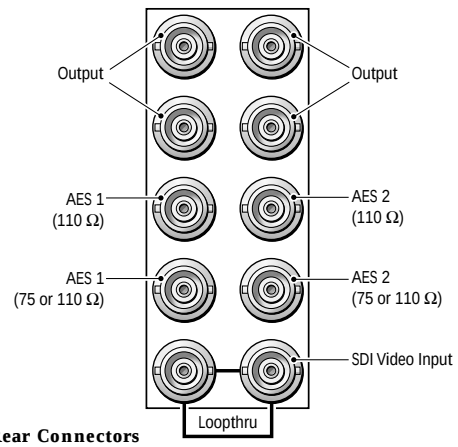
FEATURES

- Embeds 2 AES/EBU streams
- Existing audio undisturbed (270 Mb/s)
- Accepts 48 kHz audio
- EDH detection and insertion
- 75 Ω unbalanced and 110 Ω balanced audio inputs
- Supports networked control & monitoring

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8920MUX VIDEO/AUDIO MULTIPLEXER

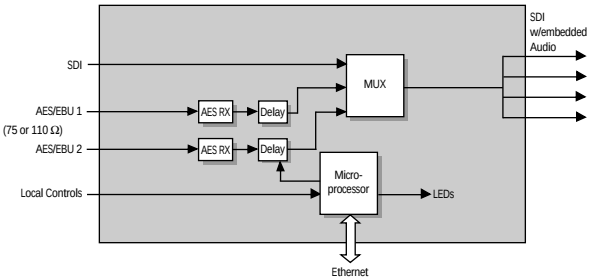
As serial digital video signals become more prevalent in production facilities, the demand for multi-channel audio increases. The 8920MUX provides a cost effective solution for inserting or replacing one of the eight available groups of dual AES streams in a multiplexed serial digital video signal with embedded AES/EBU audio. The 8920MUX can multiplex up to two, dual-channel 20 or 24-bit AES/EBU audio streams (up to 4 discrete channels). The 20 or 24-bit AES streams are grouped together and given a unique group ID. This AES group is then inserted into the ancillary data space of the 525 or 625 serial digital component video signal. The 8920MUX is able to add a new AES group into empty ancillary data space, or it can replace an existing AES group—without disturbing the remaining AES groups. Audio inputs can be either 75 Ω unbalanced or 110 Ω balanced via coaxial cable with BNCs.



8920MUX Rear Connectors

8920MUX Video/Audio Multiplexer

All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone.



SPECIFICATIONS

VIDEO INPUT
Signal Type: SMPTE259M, EBU 3267-E
Connector: Loopthrough BNC
Impedance: High Z
Return Loss: >15 dB up to 270 MHz
Cable Equalization: <300 meters

AUDIO INPUT
Signal Type: AES-3id - 1995 (75 Ω), AES-3 (110 Ω)
Number of Channels: 4 (2 AES streams)
Connectors: BNC (75 Ω), Terminal Block Adapter. (110 Ω)
Sample Rate: 48 kHz
Resolution: 20 or 24-bits

OUTPUT
Signal Type: SMPTE 259M, EBU 3267-E
No outputs: 4
Connector: 75 Ω BNC
Return Loss: >15 dB, 5 to 270 MHz
Error Checking: EDH Embedded

PERFORMANCE
Power Consumption: <7 W
Operating Temperature: 0 to 45°C
Humidity: 10% to 90% noncondensing

INDICATORS & CONTROLS
Indicators: Video present, audio present, group present, fault, power, communication active, configuration, remote override
Controls: Audio group selection
Remote: All indicators & controls via Ethernet

ORDERING INFORMATION

8920MUX
Video/Audio Multiplexer, 75 Ω

8920MUX-110
Video/Audio Multiplexer, 110 Ω

8920MUXMAN
Product Manual

8900CTB-04
BNC to terminal block adapter to convert 8920MUX to 8920MUX-110

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8920DMX VIDEO/AUDIO DEMULTIPLEXER

FEATURES

- Extracts up to 2 AES/EBU streams
- Supports 48 kHz audio
- EDH detection
- 75 Ω unbalanced and 110 Ω balanced outputs
- Supports networked control & monitoring

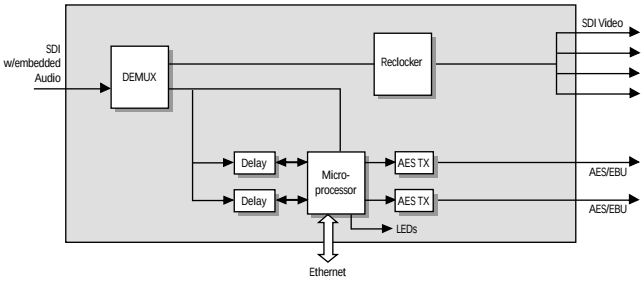
8920DMX Video/Audio Demultiplexer

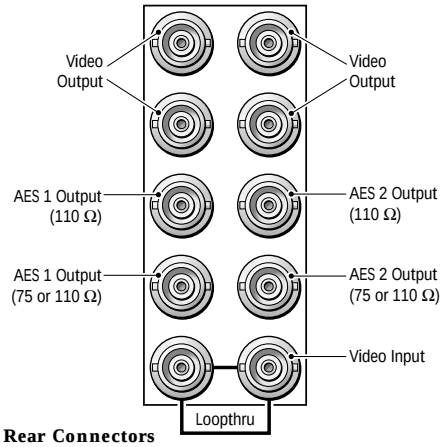
For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8920DMX VIDEO/AUDIO DEMULTIPLEXER

This companion to the 8920MUX simplifies the management of multi-channel audio by extracting up to two, 48 kHz dual channel AES audio streams (up to 4 discrete channels) from one of the eight available AES groups in the ancillary data space of embedded 525 or 625 serial digital component video. The 8920DMX recognizes and preserves the ID and channel status of the 20 or 24-bit AES group and can delete groups assigned for extraction or pass them through to another demultiplexer. The two AES/EBU outputs can be either 75 Ω unbalanced or 110 Ω balanced BNCs to accommodate a variety of digital audio processing equipment.

All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone.





8920DMX Rear Connectors

SPECIFICATIONS

VIDEO INPUT
Signal Type: SMPTE259M, EBU 3267-E
Connector: Loopthrough BNC
Impedance: High Z
Return Loss: >15 dB up to 270 MHz
Cable Equalization: <300 meters

AUDIO OUTPUT
Signal Type: AES-3id – 1995 (75 Ω), AES-3 (110 Ω)
Number of Channels: 4
Connectors: BNC (75 Ω), Terminal Block Adapter (110 Ω)
Sample Rate: 48 kHz
Resolution: 20- or 24-bits

VIDEO OUTPUT
Signal Type: SMPTE 259M
Number of Outputs: 4
Connector: 75 Ω BNC
Return Loss: >15 dB, 5 to 270 MHz
Error Checking: EDH Embedded

PERFORMANCE
Power Consumption: <7 W
Operating Temperature: 0 to 45°C
Humidity: 10% to 90% noncondensing

INDICATORS & CONTROLS
Indicators: Video present, audio present, fault, power, communication active, config., remote override
Controls: Audio group selection
Remote: All indicators & controls via Ethernet

ORDERING INFORMATION

8920DMX
Audio/Video Demultiplexer, 75 Ω

8920DMX-110
Audio/Video Demultiplexer, 110 Ω

8920DMXMAN
Product Manual

89CTB-04
BNC to terminal block adapter to convert 8920DMX to 8920DMX-110

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8931 FANOUT DISTRIBUTION AMPLIFIER

FEATURES

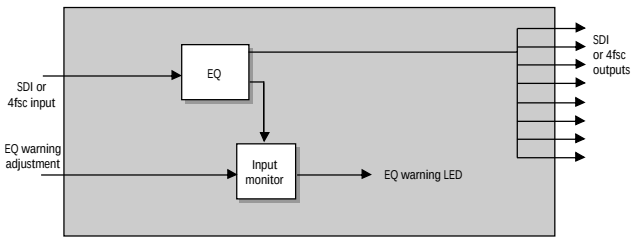
- Passive loopthrough design adds system flexibility and reliability
- Eight outputs
- Auto-equalization up to 300 m
- Supports both component and composite signals
- Front panel LED indicate EQ warning
- Remote health monitoring

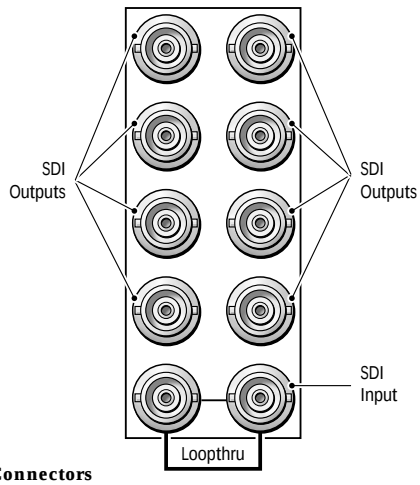
8931 Fanout Distribution Amplifier

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8931 Fanout Distribution Amplifier

The 8931 digital fanout DA is designed for distributing all major digital video formats. It is especially suited for short runs of recently reclocked signals where jitter is not a problem. Limiting the number of times a signal is reclocked helps avoid low frequency artifacts.





8931 Rear Connectors

SPECIFICATIONS

INPUT
Type: Serial Digital (SMPTE 259M A, B, C and D)
Connector Type: BNC
Impedance: High Z loopthrough
Supported data rates: 143, 177, 270 and 360 Mb/s
Return Loss: >18 dB up to 270 MHz, >15 dB up to 360 MHz
Automatic Cable Equalization:
<300 meters (up to 270 Mb/s)
<200 meters (up to 360 Mb/s)

OUTPUT
Type: Serial Digital (SMPTE 259M A, B, C and D)
Number of Outputs: 8
Connector Type: BNC
Impedance: 75 Ω
Return Loss: >18 dB up to 270 MHz >15 dB up to 360 MHz

PERFORMANCE
No signal reclocking
Power Consumption: <2.5 W
Electrical Length: 3.4 ± 1 ns
Temperature Range: 0° – 50°C (All specifications met)
Health Monitoring: Power supply fault alert per SMPTE 269M
Input signal present
Input EQ warning

INDICATORS/CONTROLS
Indicators: EQ warning
Remote: SMPTE alarm

ORDERING INFORMATION

8931
Fanout Distribution Amplifier

8931MAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

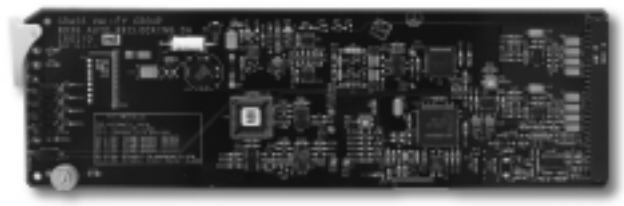
8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8936 AUTO RECLOCKING DISTRIBUTION AMPLIFIER

FEATURES

- Passive loopthrough design adds flexibility and reliability to system
- Eight outputs
- Auto detects all SMPTE 259M data rates
- Auto-equalization up to 300 meters
- Auto format detection (525/625)
- Front panel LEDs indicate signal data rate and EQ warning
- Remote health monitoring

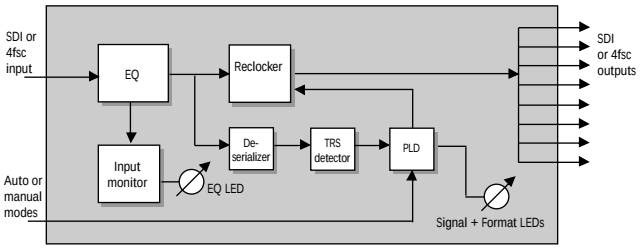


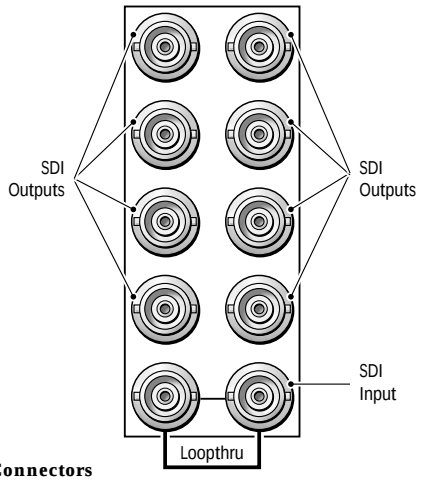
8936 Auto Reclocking Distribution Amplifier

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8936 Auto Reclocking Distribution Amplifier

The 8936 Auto Reclocking DA is suited for medium to long distance distribution. The reclocking feature reduces the jitter induced over long cable runs or from unstable sources. Signal formats are automatically detected so there is no need to set jumpers or determine signal rate beforehand.





8936 Rear Connectors

SPECIFICATIONS

INPUT
Type: Serial digital (SMPTE 259M A, B, C and D)
Connector Type: BNC
Impedance: High Z loopthrough
Supported Data Rates: 143, 177, 270 and 360 Mb/s
Return Loss:
>18 dB (up to 270 MHz)
>15 dB (up to 360 MHz)
Automatic Cable Equalization:
<300 meters (up to 270 Mb/s)
<200 meters (up to 360 Mb/s)

OUTPUT
Type: Serial Digital (SMPTE 259M A, B, C and D)
Number of Outputs: 8
Connector Type: BNC
Impedance: 75 Ω
Return Loss:
>18 dB (up to 270 MHz)
>15 dB (up to 360 MHz)

PERFORMANCE
Signal Reclocked
Power Consumption: <4 W
Electrical Length: 3.4 ± 1 ns
Temperature Range: 0° – 50°C (All specifications met)
Health Monitoring –
Power supply fault alert per SMPTE 269M
Input signal present
Input EQ warning

INDICATORS/CONTROLS
Indicators: Input sample rate, EQ warning
User Controls: Input sample rate, EQ warning (enable/disable), video present (enable/disable)
Remote: SMPTE alarm

ORDERING INFORMATION

8936
Auto Reclocking Distribution Amplifier

8936MAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8941 COMPONENT DIGITAL MONITORING DISTRIBUTION AMPLIFIER

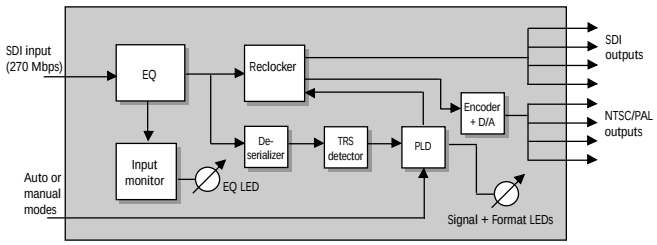
FEATURES

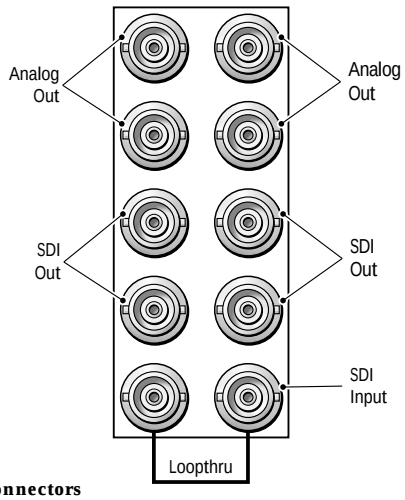
- Passive loopthrough design adds flexibility and reliability to system
- 4 analog composite outputs and 4 serial component digital outputs
- Ancillary data and audio detection
- Auto format detection (525/625)
- Front panel LEDs indicate line count, EQ warning and ancillary audio/data presence
- Remote health monitoring

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8941 Component Digital Monitoring Distribution Amplifier

The 8941 Monitoring DA supports up to 4 NTSC or PAL monitors for picture viewing in addition to 4 reclocked serial component digital outputs. The 8941 is tailored specifically for 270 Mb/s serial component digital signals, both 525 and 625 formats. In addition to monitoring output, the 8941 also indicates via front panel LED whether either ancillary data or audio is embedded in the signal.





8941 Rear Connectors

8941 Component Digital Monitoring Distribution Amplifier

SPECIFICATIONS

INPUT
Type: Serial Digital (SMPTE 259M, C)
Connector Type: BNC
Impedance: High Z loopthrough
Supported Data Rate: 270 Mb/s
Return Loss: >18 dB (up to 270 MHz)
Automatic Cable Equalization: <300 meters (up to 270 Mb/s)

DIGITAL OUTPUT
Type: Serial Digital (SMPTE 259M C)
Number of Outputs: 4
Connector Type: BNC
Impedance: 75 Ω
Return Loss: >18 dB (up to 270 MHz)

ANALOG OUTPUT
Type: Composite Analog (SMPTE 170M or CCIR 624)
Number of Outputs: 4
Connector Type: BNC
Impedance: 75 Ω
Return Loss: >40 dB (up to 5 MHz)

PERFORMANCE
Digital output signal reclocked
Differential Gain: <1% (analog output)
Differential Phase: <1° (analog output)
Power Consumption: <5.5 W
Electrical Length: Analog: 9.87 µs typical Digital: 10 ns typical
Temperature Range: 0° – 50°C (All specifications met)
Health Monitoring: Power supply fault alert per SMPTE 269M, Input signal present, Input EQ warning, Missing EAV/SAV

INDICATORS/CONTROLS
Indicators: Input video present, EQ warning, Ancillary data present, Ancillary audio data present
User Controls: Setup, input rounding, health alarm modes, cross-color reduction, vertical blanking, test signal, output gain
Remote: SMPTE alarm

ORDERING INFORMATION

8941
Component Digital Monitoring Distribution Amplifier

8941MAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

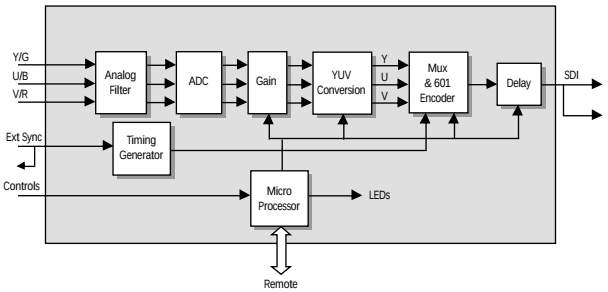
8950ADC COMPONENT A-TO-D CONVERTER

FEATURES

- 10-bit A-to-D converter
- 4X over-sampling for outstanding resolution
- Individual component gain adjustment
- EDH insertion
- 2 lines output phasing
- Supports all popular CAV formats
- Selective vertical blanking
- Passive loopthrough external sync input
- Housed in the same frame with other 8900 audio and video modules
- Remote control via Ethernet frame I/F

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

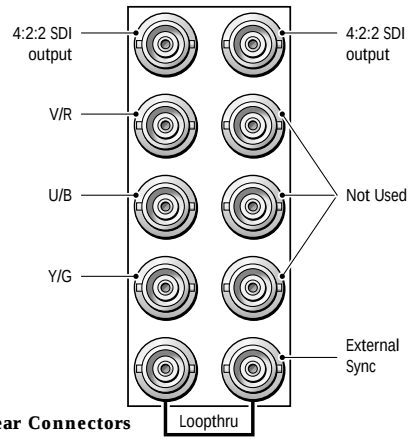
8950ADC Component A-to-D Converter



8950ADC COMPONENT A-TO-D CONVERTER

The 8950ADC converts a component analog video signal from analog VTRs and switchers to serial digital, which can then be routed through a digital router or switcher or stored on a digital video disk recorder. It offers 2.5 horizontal lines of user-controllable delay to adjust the output timing, and inserts EDH code to help track errors downstream.

All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone.



8950ADC Rear Connectors

SPECIFICATIONS

INPUT
Type: Component Analog Video
Connector: 75 Ω BNC
Format: RGB, EBU N10, Beta (US), Beta (Japan), MII (US), MII (Japan)
Return Loss: >40 dB to 5.5 MHz

REFERENCE INPUT
Connector: High Z loopthrough BNC
Return Loss: >40 dB to 5.5 MHz

OUTPUT
Signal Type: SMPTE 259M, 10-bit 4:2:2, 270 Mb/s
Number of Outputs: 2
Connector: 75 Ω BNC
Return Loss: >18 dB to 270 MHz
EDH embedded

PERFORMANCE
Quantization: 10-bits
Internal DSP: 4X over-sampling
Frequency Response: ± 0.1 dB
Group Delay Error: <5 ns
Signal to Noise Ratio: > 60 dB
Output Phasing Range: Up to 2.5 video lines
Phasing Increment: 37 ns step
Electrical Length: 2.5 µs
Power: <7.2 W
Operating Temperature: 0 to 45°C
Relative Humidity: 0 to 90% noncondensing

INDICATORS & CONTROLS
Indicators:
Input video present
Reference present (2: 525,625)
Fault
Power
Front Edge Controls:
Standard selection
Video gain
Component gain adjustments
Component black level
Input format
Blanking
Output delay
Remote: All indicators and controls via frame Ethernet I/F

ORDERING INFORMATION

8950ADC
Component Video A-to-D Converter

8950ADCMAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8950DAC COMPONENT D-TO-A CONVERTER

FEATURES

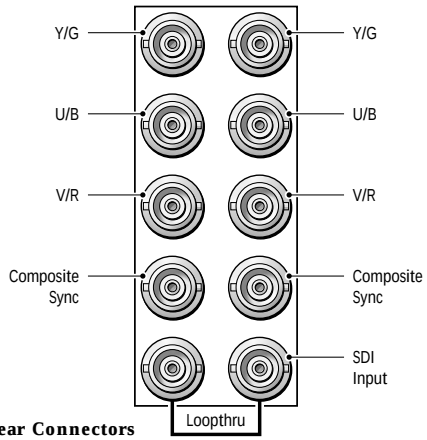
- 10-bit D-to-A converter
- 4X over-sampling for outstanding resolution
- Independent component gain adjustment
- EDH detection to track signal errors
- 2.5 lines output phasing
- Supports all popular CAV formats
- Selective vertical blanking
- Passive loopthrough input
- Housed in the same frame with other 8900 audio and video modules
- Remote control via Ethernet frame I/F

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8950DAC COMPONENT D-TO-A CONVERTER

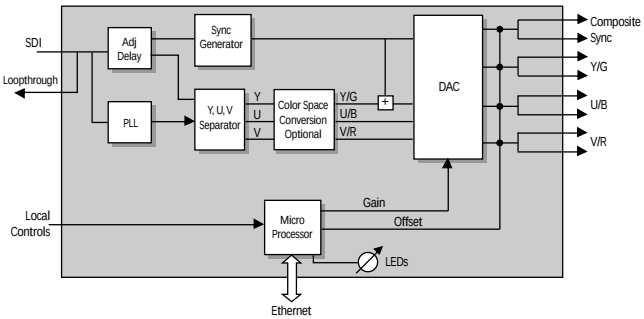
Use the 8950DAC to display a serial component digital signal on an analog RGB monitor, to record a digital video signal to an analog component VTR, or to send digital video to a component analog switcher. The 8950DAC is compact and fits in the popular 8900 frame which holds 10 modules in 2 RU, is completely self cooling and offers Ethernet interface.

All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone.



8950DAC Rear Connectors

8950DAC Component D-to-A Converter



SPECIFICATIONS

INPUT
Signal Type: SMPTE259M serial 10 bits 4:2:2 component video
Connector: High Z loopthrough BNC
Return Loss:
>18 dB up to 270 MHz

OUTPUT
Connector: 75 Ω BNC
Number of Video outputs:
2 sets (RGB or YUV)
Number of Analog Sync Outputs: 2
Formats:
RGB, EBU N10 (SMPTE MII Japan), Beta US, Beta Japan, MII US
Sync Output: Analog composite sync
Return Loss:
>40 dB up to 5.5 MHz

PERFORMANCE
Quantization: 10-bits
Sampling: 4X (54 MHz)
Frequency Response: ±0.1 dB
Phase Increments: 37 ns
Signal-to-Noise Ratio: ≥70 dB
Group Delay Error: < 5 ns

Vertical Blanking:
525: Narrow 9L or wide 19L
625: Narrow 9L or wide 25L
Output Phasing: 2.5 horizontal lines
Electrical Length: 2.5 µs
Power: <7.5 W
Operating Temperature:
0 to 45°C ambient
Relative Humidity: 0 to 90% noncondensing

INDICATORS & CONTROLS
Indicators:
Input video present
Power
Fault (EDH)
Output video level warning
Front Edge Controls:
Standard selection
Video gain, output timing
Component gain adjustments (Y/G,Cb/B & Cr/R)
Sync level
Input format
Blanking
Remote:
All indicators and controls via frame Ethernet

ORDERING INFORMATION

8950DAC
Component Video D-to-A Converter

8950DACMAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8960DEC NTSC/PAL TO SDI DECODER

FEATURES

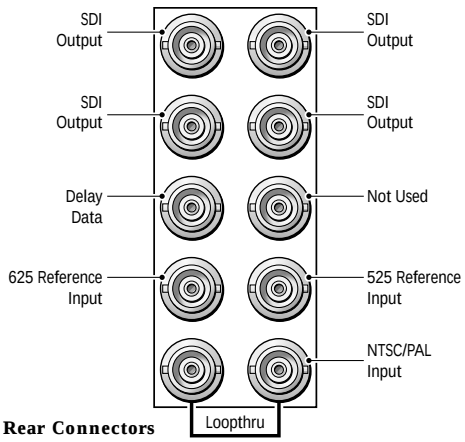
- 12-bit A-to-D quantization
- Adaptive filters for optimal 2D decoding
- Proc Amp controls to adjust remote analog feeds: luma, black, chroma and hue
- EDH insertion to track signal errors
- Frame sync/delay submodule for low cost system timing
- Optional VBI blanking
- Built-in test signal generator
- Remote control via frame Ethernet I/F

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8960DEC NTSC/PAL TO SDI DECODER

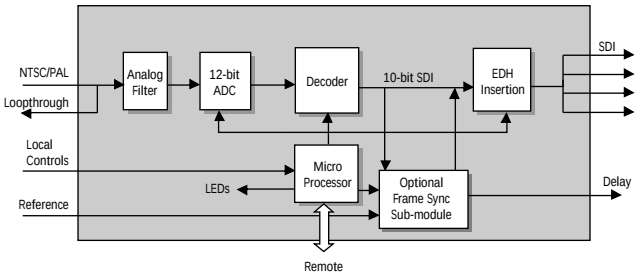
Featuring 12-bit A-to-D and full adaptive decoding, the 8960DEC provides excellent broadcast quality serial component digital video to help transition from an analog to a digital facility. The 8960DEC uses the latest components to decode analog composite video to serial component digital video. A unique capability of the 8960DEC is that by adding the 8900FSS frame sync submodule you get a full frame synchronizer, or a frame delay.

All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral? SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone.



8960DEC Rear Connectors

8960DEC NTSC/PAL to SDI Decoder



SPECIFICATIONS

INPUT
Signal Type: Composite analog video; SMPTE 170M for NTSC and CCIR624 for PAL
Connector: High Z loopthrough BNC
Return Loss: >40 dB to 5.5 MHz

REFERENCE INPUT
No. of Inputs: 2
Signal Type: SMPTE170M (525 lines) or CCIR624 (625 lines)
Connector: BNC
Impedence: 75 Ω or High Z (jumper selectable)
Return Loss: >40 dB to 5 MHz

OUTPUT
No. of Outputs: 4
Signal Type: Serial component digital video conforming to SMPTE259M
Connector: 75 Ω BNC
Return Loss: >15 dB to 270 MHz
Jitter: Conforms to SMPTE 17.12/002
Rise/Fall Times: 700 – 900 ps (20 – 80% aptitude)

PERFORMANCE
Quantization: 12-bits
Overall Processing Accuracy: 10-bits
Luma Frequency Response: ±0.1 dB to 5.5 MHz
Chroma (r-Y, B-Y) Response: ±0.5 dB to 1.3 MHz
Chroma/Luma Delay: <10 ns
Chroma/Luma Gain Inequality: <0.05 dB
Luma Non-linearity: <0.15%
Signal to Noise: >60 dB to 5.5 MHz
Electrical Length: 1 line + 2 µs
V Blanking: Passed or blanked
Power Consumption: <6.5 W
Operating Temperature: 0 – 45°C, ambient
Relative Humidity: 0 to 90% noncondensing

INDICATORS & CONTROLS
Indicators: Input video present, fault, power, line rate
Controls: Input video gain, luma level, black level, chroma level, hue, filters, vertical blanking, test signal, output timing (w/8900FSS)
Remote: All controls and indicators via Ethernet

ORDERING INFORMATION

8960DEC
NTSC/PAL to SDI Decoder

8960DECMAN
Product Manual

8900FSS
4:2:2 frame synchronizer/delay submodule

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8960ENC SDI TO NTSC/PAL ENCODER

FEATURES

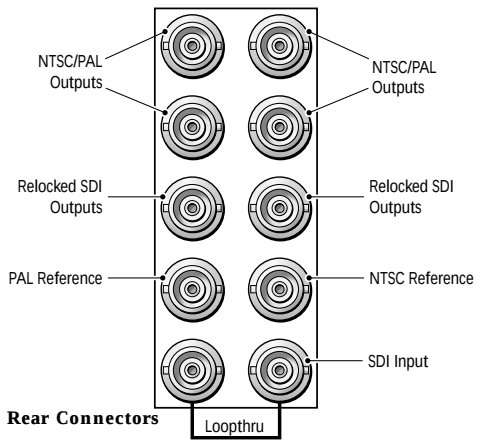
- 10-bit signal processing
- 4 NTSC/PAL outputs
- 2 reclocked SDI outputs
- Proc Amp controls: luma, black, chroma and hue
- Full frame output phasing with 8900FSS submodule
- Vernier timing controls to accomodate tight timing windows
- 2 built-in test signals
- Dual reference inputs for multiformat facilities
- EDH detection to track signal errors
- Remote control via frame Ethernet I/F

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8960ENC SDI TO NTSC/PAL ENCODER

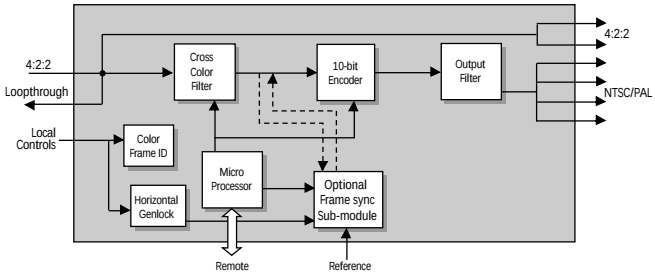
The 8960ENC converts a serial component digital signal to NTSC or PAL composite analog. It can interface with analog VTRs, composite analog production switchers and analog transmitters, and accepts the 8900FSS submodule to allow output to be synchronized to an external reference, or accurately timed to a tight analog timing window.

All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral? SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone.



8960ENC Rear Connectors

8960ENC SDI to NTSC/PAL Encoder



SPECIFICATIONS

INPUT
Type: SMPTE 259M, 10-bit, 270 Mb/s serial component digital
Connector: 75 Ω BNC
Return Loss: >15 dB to 270 MHz

REFERENCE INPUT
Number of Inputs: 2
Signal Type: SMPTE170M (525 lines) or CCIR624 (625 lines)
Connector: 75 Ω BNC
Return Loss: >36 dB to 5 MHz

ANALOG OUTPUT
Number of Outputs: 4
Signal Type: SMPTE170M for NTSC and CCIR624 for PAL
Connector: 75 Ω BNC
Return Loss: > 40 dB to 5.5 MHz
Isolation: > 46 dB to 5.5 MHz

SERIAL DIGITAL OUTPUT
Number of Outputs: 2
Type: SMPTE 259M, 10-bit, 270 Mb/s serial component digital
Connector: 75 Ω BNC
Output Return Loss: >15 dB up to 270 MHz
Jitter: Conform to SMPTE17.2/002 (<300 ps)
Rise/Fall Times: 400 to 700 ps (20 – 80% amplitude)

PERFORMANCE
Quantization: 10-bits
Accuracy: 9.2-bits

EDH Detection
Response: ±0.1 dB to 5.5 MHz
Differential Phase: < 0.5°
Differential Gain: < 0.9%
RMS SNR: > 59 dB to 5.5 MHz
Output Phasing: Full frame with 8900FSS submodule
Electrical Length: 2.1 µs
Fine Phase: 0 – 45 ns
Operating Temperature: 0 – 45°C
Relative Humidity: 0 – 90%
Power Consumption: 6.5 W

INDICATORS & CONTROLS
Indicators: Input video present, reference present, communication active, power, fault
Controls: Output gain, luma level, black level, chroma level, hue, filters, vertical blanking, test signal, timing
Remote: All indicators & controls via Ethernet

ORDERING INFORMATION

8960ENC
SDI to NTSC/PAL Encoder

8960ENCMAN
Product Manual

8900FSS
4:2:2 frame synchronizer/delay submodule

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8981FS SDI FRAME SYNCHRONIZER/DELAY

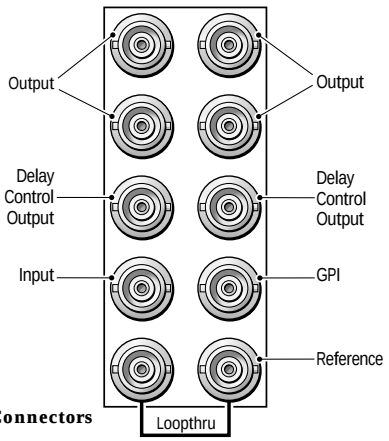
FEATURES

- 10-bit signal processing assures broadcast quality
- Adjust color and luma gain and offset
- Various freeze options for production applications
- Audio delay control signal to drive audio delay
- Functions as frame synchronizer or fixed delay
- Up to a full frame of delay
- Cleanly handles input signal hot switches
- Passes all horizontal ancillary data (AES)
- Passes or blanks vertical interval data
- EHD detection and insertion
- Complete remote control with GPI or Ethernet interface

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

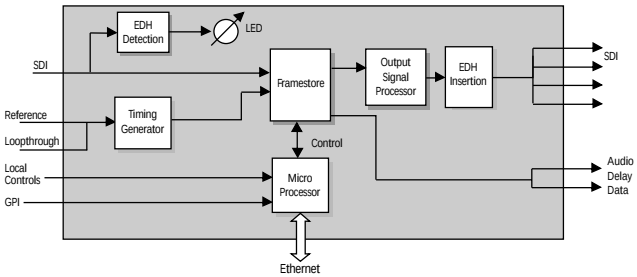
8981FS SDI FRAME SYNCHRONIZER/DELAY

The 8981FS offers unparalleled functionality for the price. It combines the best features of a frame synchronizer, frame delay and digital processing amplifier in one low cost module. The 8981FS is a critical module designed to handle various environments and applications including asynchronous input video signal timing, manual color correction, and production freeze frame applications. It operates as a companion to the popular 8916 AES Auto-tracking Delay DA for audio synchronization applications. Several control modes are also offered including local board controls, GPI for freeze control and, with the optional 8900NET, Ethernet control over a LAN/WAN using a variety of user friendly interfaces.



8981FS Rear Connectors

8981FS SDI Frame Synchronizer/Delay



All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral™ SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone.

SPECIFICATIONS

INPUT
Signal Type: SMPTE 259M-C or EBU 3267 (270 Mb/s)
Connector: 75 Ω BNC
Automatic Cable Eq.: <300 meters
Return Loss: >15 dB, 5 to 270 MHz

REFERENCE INPUT
Signal Type: Analog color black 525 or 625 lines per SMPTE 170M or CCIR 624
Connector: BNC Loopthrough
Signal Level: Sync level 140 mV to 560 mV pp
Return Loss: >40 dB to 5.5 MHz

OUTPUT
Signal Type: SMPTE 259M-C or EBU 3267
Number of Outputs: 4
Connector: 75 Ω BNC
Return Loss: >15 dB, 5 to 270 MHz

DELAY DATA
Number of Outputs: 2
Connector: BNC

PERFORMANCE
Signal Path: 10-bits
Error Detection and Insertion: EDH
Switching Line Processing: Optional black insertion
Min. Electrical Length (delay mode): 2 lines
Output Timing Range: 1 frame
Output Timing Resolution: 37 ns
Operating Temperature: 0 to 45°C
Operating Humidity Range: 0 to 90% noncondensing
Overall Power Dissipation: 4.5 W

INDICATORS AND CONTROLS
Indicators: Signal present, line rate, reference present, freeze mode, delay mode, fault, communication active, configuration
Controls: Output timing, proc amp controls, freeze, blanking, sync/delay mode
GPI Control: Freeze
Remote: All indicators and controls via Ethernet

ORDERING INFORMATION

8981FS
SDI Frame Synchronizer/Delay

8981FSMAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8990ARC SDI ASPECT RATIO CONVERTER

FEATURES

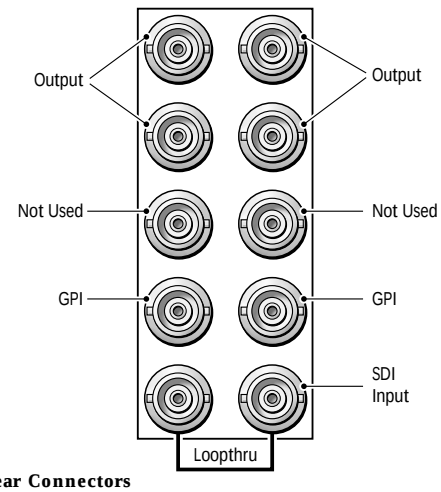
- SDI 270 Mb/s I/O
- Operates at 50 and 59.94 Hz
- Converts between 4:3 and 16:9 aspect ratios
- Various aspect ratio modes with controllable crop location
- Simple GPI remote control via BNC
- Supports networked control & monitoring

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

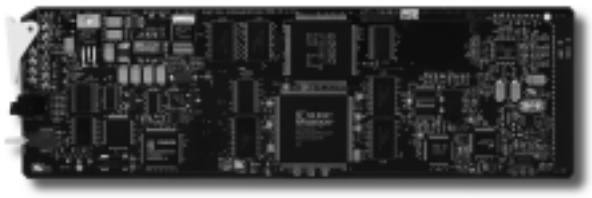
All possible adjustments to this card can be performed directly on the module. If a 8900NET card is installed in the frame, you gain immediate access to the most powerful remote control and monitoring systems on the market. Our NetCentral? SNMP remote monitoring system can monitor your modules and frames, alerting you to problems via pager, e-mail or phone. Using a standard Web browser, you can log into your 8900 frame from anywhere in the world to make adjustments to frame or module parameters. In addition, a remote control panel makes it easy to adjust modules across several racks from a centralized location in your control room.

8990ARC SDI ASPECT RATIO CONVERTER

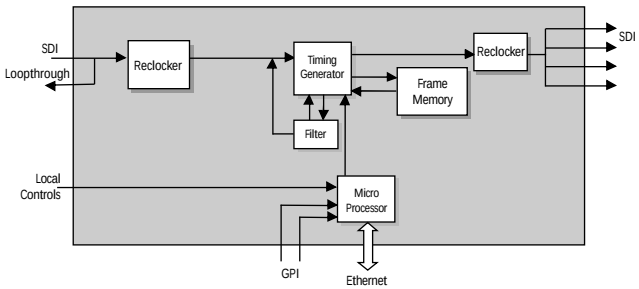
The 8990ARC addresses the need to convert between standard and widescreen formats resulting from various DTV standards worldwide. Flexible aspect ratio control is offered whether you're starting with 4:3 or 16:9. GPI control allows the selection of several predetermined aspect ratio modes while local or remote control, via the Ethernet interface, provides more complete aspect ratio control.



8990ARC Rear Connectors



8990ARC SDI Aspect Ratio Converter



SPECIFICATIONS

INPUT
Signal Type: SMPTE259M (C), EBU 3267-E
Connector: Loopthrough BNC
Supported Data Rate: 270 Mb/s
Return Loss: >15 dB up to 270 MHz
Cable Equalization: <225 meters

OUTPUT
Signal Type: SMPTE259M (C), EBU 3267-E
Number of Outputs: 4
Connector: 75 Ω BNC
Return Loss: >15 dB (up to 270 Mb/s)

PERFORMANCE
Signal Path Processing: 12 bits 16:9 to 4:3
Conversion Mode: letterbox, full height, 14:9 sub-image 4:3 to 16:9 Conversion Mode: side panels, full width, 14:9 sub-image
EDH Insertion: WSS and VID
Reclocking Data Rates: 270 Mb/s
Power Consumption: <6.5 W
Operating Temperature: 0 to 45°C
Humidity: 10% to 90% noncondensing

INDICATORS & CONTROLS
Indicators: Video present, Aspect ratio mode, fault, power, communication active, configuration, remote override
Controls: Aspect ratio mode, vertical & horizontal position
Remote: All indicators & controls via Ethernet

ORDERING INFORMATION

8990ARC
SDI Aspect Ratio Converter

8990ARCMAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

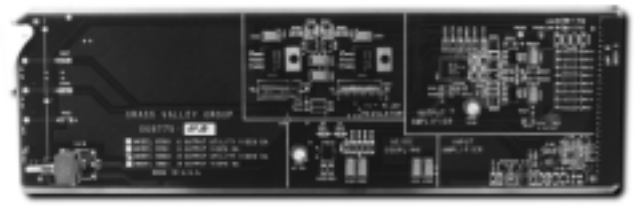
8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8800 UTILITY VIDEO DISTRIBUTION AMPLIFIER

FEATURES

- Differential looping input
- Eight outputs
- Cost effective video distribution
- AES/EBU 75 Ω distribution
- Housed in 8900 frame

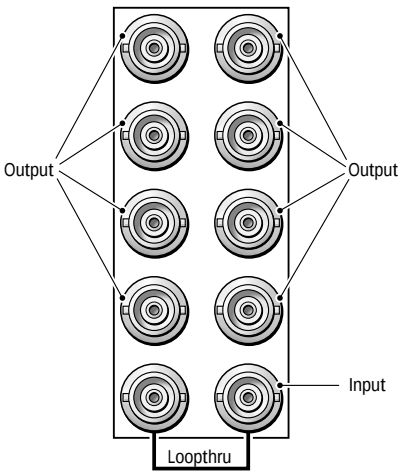


8800 Utility Video Distribution Amplifier

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8800 Utility Video Distribution Amplifier

The 8800 is our lowest priced DA, ideal for simple signal fan-out in small facilities requiring no equalization. Typical applications include short cable runs to and from monitors or other offline equipment in non-broadcast facilities, as well as color black or encoded subcarrier timing reference signal distribution. The 8800 is also ideal for coaxial distribution of AES/EBU signals.



8800 Rear Connectors

SPECIFICATIONS

INPUT
Type: Analog video (NTSC or PAL) or AES3id – 1995
Connector Type: Loopthrough BNC
Impedance: 75 Ω
Return Loss: >40 dB up to 5 MHz

OUTPUT
Number of Outputs: 8
Connector Type: BNC
Impedance: 75 Ω
Return Loss: >35 dB up to 5 MHz

PERFORMANCE
Electrical Length: 24 ns
Frequency Response:
± 0.05 dB to 5 MHz
±0.1 dB 5 to 8 MHz
Differential Gain: <0.2%
Differential Phase: <0.2%
Hum and Noise: -70 dB max
Power Consumption: 2 W
Temperature Range:
0° to 30°C (All specifications met)
0° to 50°C (operational)

INDICATORS/CONTROLS
User Controls: Output gain

ORDERING INFORMATION

8800
Utility Video Distribution Amplifier

8800MAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8801 VIDEO DISTRIBUTION AMPLIFIER

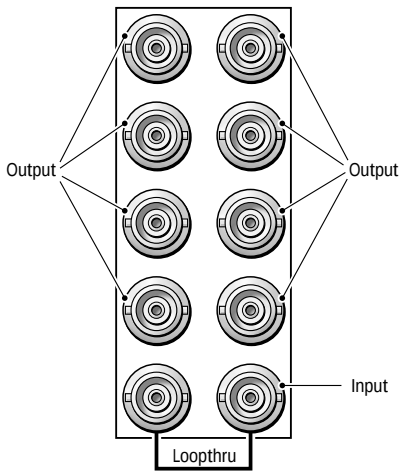
FEATURES

- Differential looping input
- Tight differential gain and phase specs
- Eight outputs
- AES/EBU 75 Ω distribution
- Housed in 8900 frame

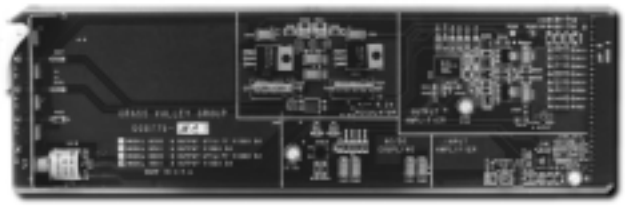
For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8801 Video Distribution Amplifier

For applications requiring tight signal control, the 8801 offers improved frequency response and better gain and phase disturbance compared to the lower cost 8800. Ideal for short run distribution of broadcast quality signals. The 8801 is also ideal for coaxial distribution of AES/EBU signals.



8801 Rear Connectors



8801 Video Distribution Amplifier

SPECIFICATIONS

INPUT
Type: Analog video (NTSC or PAL) or AES3id – 1995
Connector Type: Loopthrough BNC
Impedance: 75 Ω
Return Loss: >40 dB up to 5 MHz

OUTPUT
Number of Outputs: 8
Connector Type: BNC
Impedance: 75 Ω
Return Loss: >40 dB up to 5 MHz

PERFORMANCE
Frequency Response:
±0.025 dB to 5 MHz
±0.05 dB 5 to 8 MHz
-1 dB at 16 MHz
Differential Gain: <0.1%
Differential Phase: <0.1°
Gain Range: ±2 dB
Hum and Noise: -70 dB max.
Tilt: <0.5%
Coupling: AC/DC, selectable
Electrical Length: 24 ns
Power Consumption: 2 W
Temperature range:
0° – 30°C (All specifications met)
0° – 50°C (Operational)

INDICATORS/CONTROLS
User Controls: Output gain

ORDERING INFORMATION

8801
Video Distribution Amplifier

8801MAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8802 EQUALIZING DISTRIBUTION AMPLIFIER

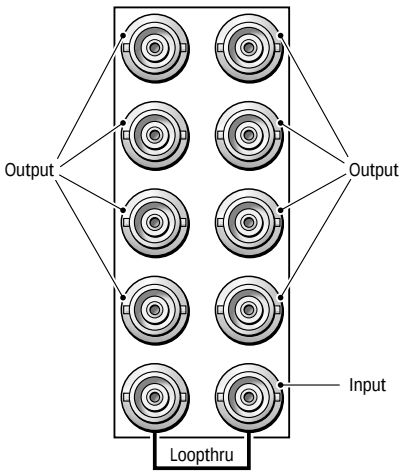
FEATURES

- Differential looping input
- Tight differential gain and phase specs
- Equalization up to 300 meters
- Eight outputs
- Housed in 8900 frame

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8802 Equalizing Distribution Amplifier

The 8802 offers the same tight specifications as the 8801 DA with the addition of equalization to compensate for attenuation and phase errors associated with long cable runs. Ideal for large facilities with long cable runs.



8802 Rear Connectors

8802 Equalizing Distribution Amplifier

SPECIFICATIONS

INPUT
Type: Analog video (NTSC or PAL)
Connector Type: Loopthrough BNC
Impedance: 75 Ω
Return Loss: >40 dB up to 5 MHz

OUTPUT
Number of Outputs: 8
Connector Type: BNC
Impedance: 75 Ω
Return Loss: >40 dB up to 5 MHz

PERFORMANCE
Cable Equalization: Dual range
0 – 150 m (0 – 500 ft.)
150 – 300 m (500 – 1000 ft.)
Frequency Response:
±0.025 dB to 5 MHz
±0.05 dB 5 to 8 MHz
-1 dB at 16 MHz
Differential Gain: <0.1%
Differential Phase: <0.1%
Gain Range: ±2 dB
Hum and Noise: -70 dB max.
Tilt: <0.5%
Coupling: AC/DC, selectable
Electrical Length: 31 ns
Power Consumption: 2 W
Temperature Range:
0° – 30°C (All specifications met)
0° – 50°C (Operational)

INDICATORS/CONTROLS
User Controls: Output gain, EQ adjust, coupling

ORDERING INFORMATION

8802
Equalizing Video DA

8500T2MAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

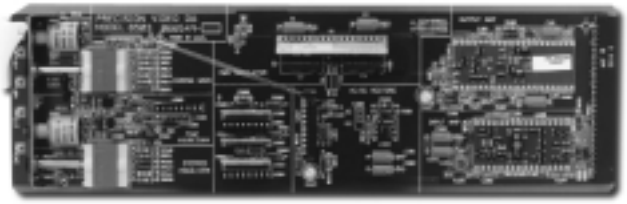
8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8503 PRECISION DISTRIBUTION AMPLIFIER

FEATURES

- Precise equalization up to 300 meters
- ±1 meter EQ accuracy
- Fine gain control
- Differential looping input
- 6 outputs
- Housed in 8900 frame

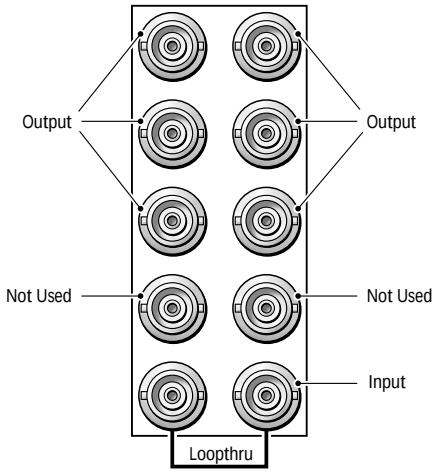


8503 Precision Distribution Amplifier

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8503 Precision Distribution Amplifier

The 8503 is our highest precision equalizing DA. Equalization is set using a 10-step switch in conjunction with a vernier trim to dial-in equalization accuracies of ±1 meter. Ideal for applications sensitive to cable run errors.



8503 Rear Connectors

SPECIFICATIONS

INPUT
Type: Analog video (NTSC or PAL)
Connector Type: Loopthrough BNC
Impedance: 75 Ω
Return Loss: >40 dB up to 5 MHz

OUTPUT
Number of Outputs: 6
Connector Type: BNC
Impedance: 75 Ω
Return Loss: >40 dB up to 5 MHz

PERFORMANCE
Cable Equalization:
Ten, 30 meter, steps, 0 – 300 m and Vernier adjustment, 0 – 5 m
Frequency Response:
±0.025 dB to 5 MHz
±0.05 dB 5 to 8 MHz
-1 dB at 16 MHz
Differential Gain: <0.1%
Differential Phase: <0.1°
Gain Range: -2 dB
Hum and Noise: -70 dB max.
Tilt: <0.5%
Coupling: AC w/jumper selectable DC restorer
Electrical Length: 31 ns
Power Consumption: 2 W
Temperature Range:
0° – 30°C (All specifications met)
0° – 50°C (Operational)

INDICATORS/CONTROLS
User Controls: Output gain, EQ adjust, coupling

ORDERING INFORMATION

8503
Precision Video Distribution Amplifier

8500T2MAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8504 VIDEO DELAY DISTRIBUTION AMPLIFIER

FEATURES

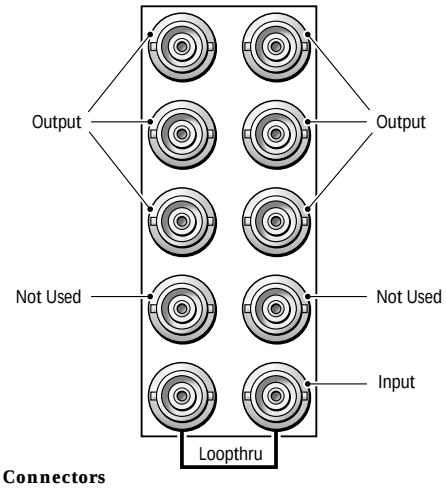
- Delays from 70 ns up to 1.1 µs in 70 ns increments
- Add-in submodules for delays >370 ns
- Differential looping input
- 6 outputs
- Housed in 8900 frame

8504 Video Delay Distribution Amplifier

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8504 Delay Distribution Amplifier

With the complex system timing issues inherent in today's video facilities, the 8504 provides a low cost method of accurately adjusting system timing as well as providing signal distribution. The 8504 uses a combination of front panel controls and add-in submodules to select delays from 70 ns up to 1.1 µs. Ideal for video signals or timing reference delays.



8504 Rear Connectors

SPECIFICATIONS

INPUT
Type: Analog video (NTSC or PAL)
Connector Type: Loopthrough BNC
Impedance: 75 Ω
Return Loss: >40dB up to 5 MHz

OUTPUT
Number of Outputs: 6
Connector Type: BNC
Impedance: 75 Ω
Return Loss: >40 dB up to 5 MHz

PERFORMANCE
Cable Equalization: 0 to 150 meters (0-500 ft.)
Frequency Response: +0.35 dB; -1.0 dB up to 8 MHz
Differential Gain: <0.25%
Differential Phase: <0.25°
Gain Range: ±2 dB
Hum and Noise: -70 dB max.
Tilt: <0.5%
Coupling: AC w/jumper selectable DC restorer
Temperature Range:
0° to 30°C (All specifications met)
0° to 50°C (Operational)

ELECTRICAL LENGTH
No plugins:
Adjustable from 70 to 370 ns
8504-D300:
Adjustable from 370 to 670 ns
8504-D500:
Adjustable from 570 to 870 ns
8504-D800:
Adjustable from 870 to 1070 ns

INDICATORS/CONTROLS
User Controls: Output gain, delay, coupling

ORDERING INFORMATION

8504
Video Delay Distribution Amplifier

8500T2MAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

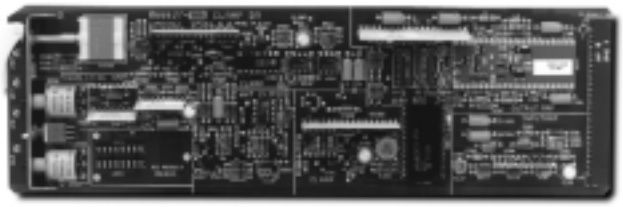
8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8506 VIDEO CLAMPING DISTRIBUTION AMPLIFIER

FEATURES

- Fast clamp mode for maximum hum loss rejection (>46 dB)
- Slow clamp mode for greater noise immunity but lower hum rejection (>34 dB)
- Selectable clamping by-pass
- Differential looping input
- 6 outputs
- Housed in 8900 frame

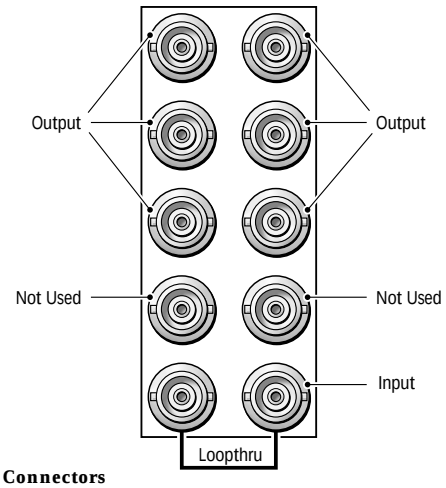


8506 Video Clamping Distribution Amplifier

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8506 Video Clamping Distribution Amplifier

The 8506 is specifically designed to reduce signal noise by clamping the input to reference. It features accurate equalization allowing up to 300 meter cable runs between equipment. Two modes of clamping provide flexibility in reducing noise and hum.



8506 Rear Connectors

SPECIFICATIONS

INPUT
Type: Analog video (NTSC or PAL)
Connector Type: Loopthrough BNC
Impedance: 75 Ω
Return Loss: >40 dB up to 5 MHz

OUTPUT
Number of Outputs: 6
Connector Type: BNC
Impedance: 75 Ω
Return Loss: >40 dB up to 5 MHz

PERFORMANCE
Cable Equalization: Dual range
0 to 150 m (0 – 500 ft.)
150 to 300 m (500 – 1000 ft.)
Frequency Response:
±0.05 dB to 5 MHz
±0.1 dB 5 to 8 MHz
Differential Gain: <0.1%
Differential Phase: <0.1°
Gain Range: ±2 dB
Hum and Noise: -70 dB max.
Tilt: <0.5%
Coupling: AC or 2 speed clamp
Electrical Length: 34 ns
Power Consumption: 2 W
Temperature Range:
0° to 30°C (All specifications met)
0° to 50°C (Operational)

INDICATORS/CONTROLS
User Controls: Output gain, EQ adjust, clamp, white clip, frequency response

ORDERING INFORMATION

8506
Video Clamping Distribution Amplifier

8506MAN
Product Manual

8900TX
2RU Frame with passive cooling and single 100 W power supply (Cooling limited to 30 W maximum load without adding fan front cover, 8900FAN)

8900TF
2RU Frame with fan front cover (8900FAN) and single 100 W power supply

8900TFN
2RU Frame with fan front cover (8900FAN), 100 W power supply and Ethernet card (8900NET)

8900PSX
Redundant 100 W power supply for 8900TX, 8900TF and 8900TFN

8900NET
Ethernet interface card to upgrade 8900TX or 8900TF

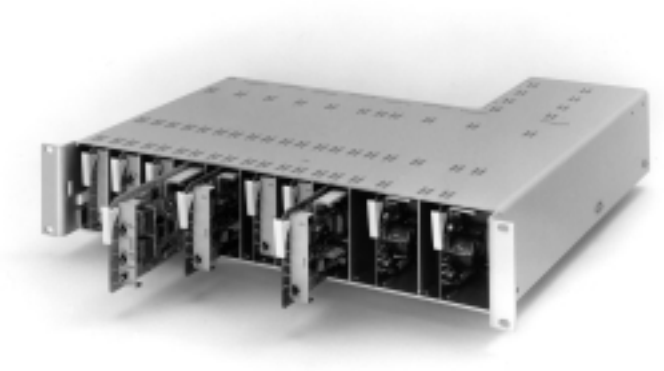
8900CAB
Cable package for network interface (requires 8900NET module)

NETC2MGR
NetCentral™ II Manager

8550 SERIES MONAURAL AUDIO DISTRIBUTION AMPLIFIERS

FEATURES

- 1RU trays accommodate a single power supply and 4 modules
- 2RU trays accommodate 2 power supplies and 8 modules
- All trays come with rear support hardware including line-cord retention hardware
- 1 power supply is included in each tray and is sufficient for any possible combination of modules to 8 per 2RU tray
- Optional module extender may be used with any module including power supplies

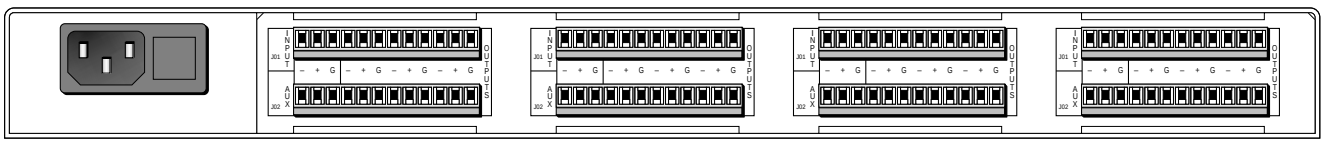


8550 Series Monaural Audio Distribution Amplifiers

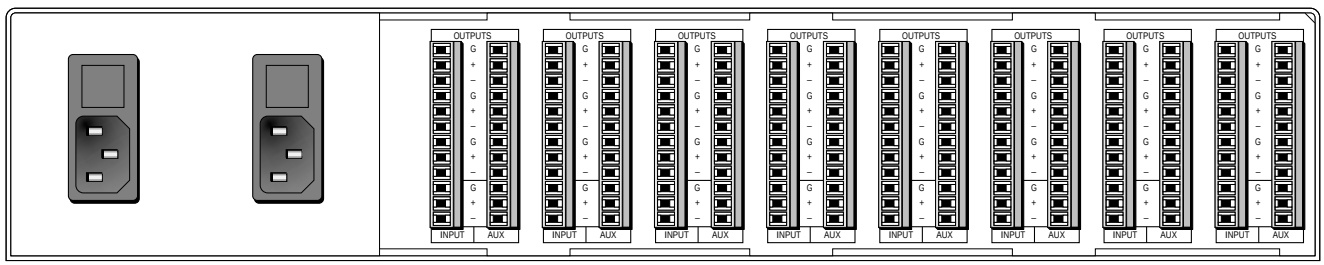
For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8550 SERIES MONAURAL AUDIO DISTRIBUTION AMPLIFIERS

The 8550 series analog audio DAs deliver highly reliable distribution. You can find these products in just about every major facility in the world and have been providing worry free distribution for years. Housed in a unique frame, these DAs were designed for low noise, and excellent frequency response.



8550T1 One rack unit audio rear panel connector layout



8550T2 Two rack unit audio tray rear connectors

ORDERING INFORMATION

8550T1-120
1RU Audio Tray with 90 to 130 V AC Power Supply

8550T1-240
1RU Audio Tray with 216 to 264 V AC Power Supply

8550T2-120
2RU Audio Tray with 90 to 130 V AC Power Supply

8550T2-240
2RU Audio Tray with 216 to 264 V AC Power Supply

8500EX
Extender for all 8500/8800 Series Video Modules

8550MAN
Product Manual

8551 AUDIO DISTRIBUTION AMPLIFIER

FEATURES

- Balanced I/O for low noise
- 6 low-Z outputs
- Ruler-flat frequency response
- Low noise components
- Front panel/jumper adjustable gain
- Housed in 8550 frame

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8551 AUDIO DISTRIBUTION AMPLIFIER

The 8551 complements our analog video DAs with monaural audio distribution capability. Premium low noise components are used throughout this workhorse DA renowned for its quality and reliability. Ideal for SAP or other monaural applications.

SPECIFICATIONS

INPUT
Impedance: >40 kΩ, balanced
Level: +24 dBu (12.28 V RMS) max at unity gain
Common Mode Rejection Ratio: >100 dB, 60 Hz to 5 kHz; >90 dB to 20 kHz

OUTPUT
Impedance: <50 Ω, balanced
Level: +24 dBu (12.28 V RMS) max

PERFORMANCE
Frequency Response: ± 0.05 dB, 20 Hz – 20 kHz; ± 0.15 dB, 10 Hz – 50 kHz
Harmonic Distortion: <0.01% at 0 dBu out, <0.025% at +24 dBu out
IM Distortion: <0.005%
Noise: -86 dBu max (quasi-peak, 22.4 Hz – 22.4 kHz, unweighted)
Gain Range: -15 to +33 dB

INDICATORS/CONTROLS
User Controls: Input gain

ORDERING INFORMATION

8551
Audio Distribution Amplifier

8550MAN
Product Manual

8552R REMOTE GAIN AUDIO DISTRIBUTION AMPLIFIER

FEATURES

- Controlled remotely, locally or both
- Balanced I/O for low noise
- 6 low-Z outputs
- Ruler-flat frequency response
- Low noise components
- Front panel/jumper adjustable gain
- Housed in 8550 frame

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8552R REMOTE GAIN AUDIO DISTRIBUTION AMPLIFIER

The 8552R is the remote version of the 8551. It features the same low noise components and allows control to be assigned locally or both. For stereo applications, 2 DAs may be connected to 1 remote gain control.

SPECIFICATIONS

INPUT
Impedance: >40 kΩ balanced
Common Mode Rejection Ratio: >100 dB, 60 Hz to 5 kHz; >90 dB to 20 kHz
Maximum Level Before Clipping (Balanced): +28 dBu (with -30 dB to +10 dB range, max gain +10 dB); +18 dBu (with -20 dB to +20 dB range, max gain +20 dB); +8 dBu (with -10 dB range, with max gain +30 dB)

OUTPUT
Impedance: <50 Ω, balanced

PERFORMANCE
Frequency Response: ± 0.05 dB 20 Hz to 20 kHz
Max Gain Indication/Range: +10 dB/-30 dB to +10 dB; +20 dB/-20 dB to +20 dB; +30 dB/-10 dB to +30 dB
THD + N: 20 Hz to 20 kHz; 80 kHz low pass <0.10%
Stereo Gain Tracking, +10 dB Setting: <0.1 dB over a ± 3 dB range
Stereo Phase Error at 20 kHz: <1°, <135 ns

INDICATORS/CONTROLS
User Controls: Input gain
Remote: Gain and balance (2DA application)

ORDERING INFORMATION

8552R
Remote Gain Audio Distribution Amplifier

8550MAN
Product Manual

8560 SERIES STEREO ANALOG AUDIO DISTRIBUTION AMPLIFIERS

FEATURES

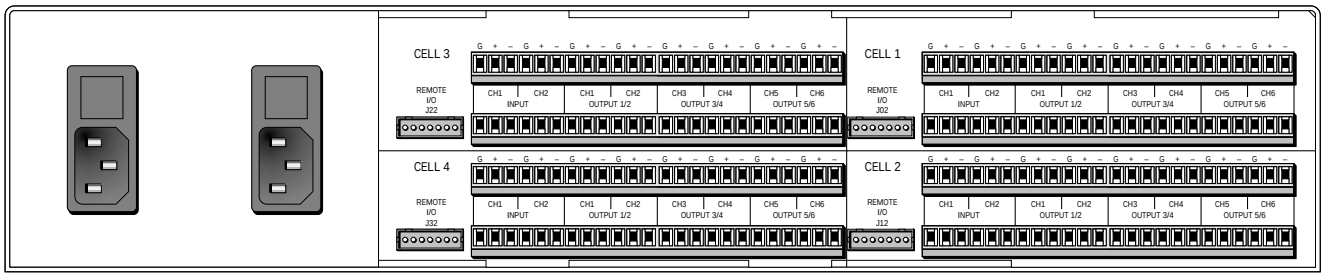
- 2RU tray
- Room for four 8560 series modules
- Comes with one power supply
- Audio connections are made with miniature screw terminal strips
- For installation ease, terminal strips plug into headers and are removable
- Optional redundant power supply

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

8560T2 Series Stereo Audio Distribution Amplifiers

8560 SERIES STEREO DISTRIBUTION AMPLIFIERS

The 8560 product series are specifically for stereo audio distribution. Unmatched control is achievable with unique submodules which connect directly to the DA board. Its high performance and flexibility make the 8560 modules ideal for broadcast and post-production applications.



8560T2 Two rack unit rear connectors

ORDERING INFORMATION

8560T2-120
2RU (4 Cell) Stereo Audio Tray with 90 to 130 VAC Power Supply

8560T2-240
2RU (4 Cell) Stereo Audio Tray with 216 to 264 VAC Power Supply

8550PS-120
Backup Power Supply for 8550T2-120 or 8560T2-120 (90 to 130 VAC)

8550PS-240
Backup Power Supply for 8550T2-240 or 8560T2-240 (216 to 264 VAC)

8560EX
Stereo Audio Module Extender

8560MAN
Product Manual

8561 STEREO ANALOG AUDIO DISTRIBUTION AMPLIFIER

FEATURES

8561 STEREO DISTRIBUTION AMPLIFIER

- Dual inputs with 6 outputs each per module
- Balanced, transformerless I/O
- 2 unique submodules for added flexibility
- Ultra low noise circuitry
- High signal handling capability
- Front panel gain and balance control

8561SM-MFS MULTIFUNCTON SUBMODULE

- Quickly and easily corrects stereo inconsistencies
- 8 input/output modes, including channel switching, phase inversions and summation
- Remote control of gain, balance and interchannel phasing

8561SM-PCS CHANNEL SWITCHING/PHASE ADJUST SUBMODULE

- Compensates up to 8 ms of time difference between stereo channels
- "Stereo Swap" mode (CH1 In to CH2 Out and CH2 In to CH1 Out)
- Channel switching modes

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

The 8561 is designed to facilitate the distribution of stereo audio signals. This DA is ideal for broadcast facilities which are converting from monaural to stereo. Its high performance components and flexibility make it ideal for television post-production, radio broadcast and recording studios as well.

SPECIFICATIONS

INPUT
Impedance: >44 kΩ, balanced and floating
Common Mode Rejection: >100 dB, 60 Hz to 5 kHz; >90 dB to 20 kHz
Level: +24 dBu (12.28 V RMS) max at unity gain

OUTPUT
Impedance: 50 Ω, ± 5%
Maximum Rated Level: +24 dBu (12.27 V, RMS), voltage mode +24 dBm, 600 Ω power-matched

PERFORMANCE
Frequency Response: ± 0.05 dB, 20 Hz to 20 kHz
Gain Range: –15 dB to +33 dB in 6 dB steps; ± 3 dB variable adjust
Balance Range: ± 3 dB variable adjustment
Gain Tracking: Better than 1% between channels
Phase Matching: Better than 135 ns between channels, 8 µs of adjustment with PCS or MFS submodule
THD +N: <0.01%
IMD: <0.01%
Noise: –90 dBu max (22.4 Hz to 22.4 kHz)
Power Consumption: <19 W
Temperature Range: All specifications met 0° to 50°C

INDICATORS/CONTROLS
User Controls: Input gain, balance, input range, operation modes (w/sub-modules)
Remote: Delay, gain, balance (submodules only)

ORDERING INFORMATION

8561
Stereo Distribution Amplifier

8560MAN
Product Manual

8561SM-MFS
Multifunction Submodule

8561SM-PCS
Channel Switching/Phase Adjust Submodule

7510 PROCESSING AMPLIFIERS

FEATURES

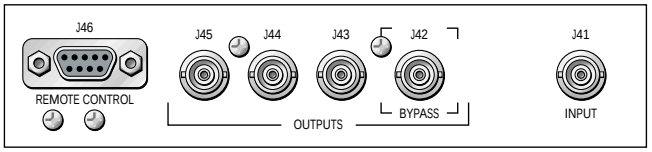
- Each module is a complete processing amplifier including:
  - Full regeneration of sync and burst
  - Hard and soft clips
  - Video AGC
  - Selectable vertical blanking widths
  - Cable equalization
- Designed for stabilization of signals received from distant locations, whether by satellite, microwave or landline of any type
- Saves operational dollars by automatically switching to internally generated mono-black upon loss of incoming video

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

7510 Processing Amplifiers

7510 PROCESSING AMPLIFIERS

Your choice of 1RU or 2RU trays allows further tailoring of your system for maximum efficiency and economy. The 1RU version accepts up to two 7510 modules – the 2RU version accepts up to four 7510s. Each tray is supplied with a single power supply; the 2RU type will accept an optional second power supply for back-up operation. Each 7510 cell has a built-in bypass relay. Loss of power automatically passes input video to the number 1 output. Any cell can accept either a 7510N (NTSC) or 7510P (PAL) module, essential in many international uplink/downlink installations.



7510N/P Module Rear Connectors

SPECIFICATIONS

INPUT
Type: Composite Analog Video
Connector Type: 75 Ω BNC
Return Loss: >40 dB up to 5 MHz
Maximum Differential Hum: 5.0 Vp-p

OUTPUT
Type: Composite Analog Video
Number of Outputs: 4
Connector Type: 75 Ω BNC
Return Loss: >40 dB up to 5.5 MHz

PERFORMANCE
Frequency Response: ± 0.2 dB to 6 MHz
Differential Gain: <0.25%
Differential Phase: <0.35°
Signal to Noise Ratio: >60 dB
Common Mode Rejection: >60 dB @ 50/60 Hz
Differential Hum Rejection: >60 dB @ 50/60 Hz
Power Consumption: <11 W per module
Temperature Range: 15° – 35°C (All specifications met) 0° – 40°C (operational)
Relative Humidity: 95%, non-condensing

INDICATORS & CONTROLS
Indicators: Video present
Front Panel Controls: Video gain, chroma gain, setup, black level, burst phase, EQ, local/remote mode, normal/direct mode, auto gain control (AGC) mode
Remote Control: All controls available from front of module except EQ, normal/direct and local/remote mode controls

ORDERING INFORMATION

7510N
NTSC Video Processing Amplifier Module with EQ for Belden 8281 cable

7510P
PAL Video Processing Amplifier Module
The following equalizers supported by 7510P:
PIK 06/37
PSF 1/3
Belden 8281
Belden RG-59

7510T1
1RU Tray with Autoranging Power Supply

7510T2
2RU Tray with Autoranging Power Supply

7510MAN
Product Manual

DAFC-PSM
Redundant Power Supply Module (115/230 V)

DAFC-EXT
7500 Module Extender

DAFC-RCK
Remote Connector Kit

7500-CPK
Control Panel Kit for one 7510 module, NTSC or PAL (includes connector)

7500-CPKMAN
Product Manual

SCB-100N SYNC COLOR BAR GENERATOR

FEATURES

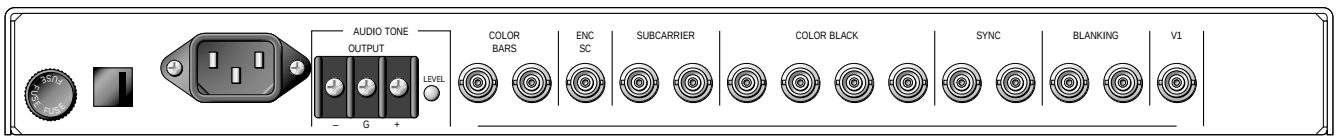
- Industry's most cost-effective stand-alone NTSC master timing generator
- 4 outputs of color black, 2 each of sync, blanking and subcarrier, make it ideal for basic system configurations
- A V1 (Color Frame ID) pulse output ensures clean edits
- Monaural audio tone output
- Grass Valley's exclusive encoded subcarrier output allows use of STM 85N source timing modules to simplify system design

SCB-100N/SCB-200N Sync Color Bar Generators

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

SCB-100N SYNC COLOR BAR GENERATOR

Quality and reliability are built into each self-contained 1RU frame of this color bar generator. The SCB-100 is designed for professional and broadcast applications. Frequency stability and SC/H phase accuracy equal to those of the industry-standard GV 9500 Series.



SCB-100N Rear panel connector layout

SPECIFICATIONS

OUTPUT
Color Black: 4 each
Sync, Blanking, Subcarrier: 2 each
Encoded Subcarrier, V1: 1 each
Color Bars: 2 each
Pulse Level: 4 V_{p-p}, neg going, ± 5%
Subcarrier Level: 2 V_{p-p}, ± 5%
Color Bars:
Luminance Amplitude Error: ± 1%
Chrominance Amplitude Error: ± 2%

PERFORMANCE
Subcarrier Frequency: 3.579545 MHz
Freerun Stability: ± 5 Hz from 0 to 50°C
Sync Timebase Error: < 2 ns
SC/H Phase Stability: 5°

AUDIO TEST GENERATOR
Signal: 1 kHz (± 10%) sine wave (monaural)
Level: Adjustable from -4 dBu to +8 dBu
Distortion: < 1% THD
Output Impedance: < 50 Ω, balanced

MECHANICAL AND POWER
Rack Equipment: 4.45 x 48.30 x 26.04 cm (1.75"H x 19"W x 10.25"D)
Input Power: 100-125 VAC, 47-63 Hz
Power Consumption: 30 W max

INDICATORS/CONTROLS
Indicators: Reference present, subcarrier locked, power
Controls: Audio gain

ORDERING INFORMATION

SCB-100N
Sync Pulse Generator

SCB-100MAN
Product Manual

SCB-200N SYNC COLOR BAR GENERATOR

FEATURES

- Ideal genlocking timing generator for professional and off-line broadcast applications
- Accepts color black or video as a reference
- 1 output each is provided of sync, blanking and subcarrier, plus 4 outputs of color black, 1 of which may be user-defined as superblack and 2 of color bars
- 1 kHz, low impedance balanced output stereo tone generator, locked to vertical timing
- Left channel identification is provided with 33 ms bursts of increased amplitude
- V1 and encoded subcarrier outputs provide simple system integration

For your local Grass Valley Group sales and technical support representative see the list in the back of this catalog or inside the U.S. call: 1-800-547-8949.

SCB-200N SYNC COLOR BAR GENERATOR

Quality and reliability are built into each self-contained 1RU frame of this color bar generator. The SCB-200 is designed for professional and broadcast applications. Frequency stability and SC/H phase accuracy equal to those of the industry-standard GV 9500 Series.

SCB-100N/SCB-200N Sync Color Bar Generators

SPECIFICATIONS

INPUT
Color Black, Sync & Burst: 40 IRE ± 6 dB
Composite Video: 1 V pp ± 6 dB

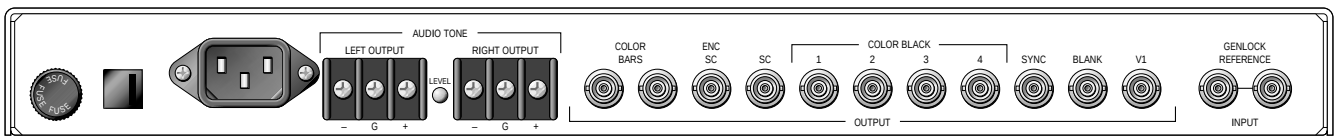
OUTPUT
Color Black: 4 each
Sync, Blanking, Subcarrier: 1 each
Encoded subcarrier, V1: 1 each
Color Bars: 2 each, SMPTE format
Pulse Level: 4 V pp, neg going, ± 5%
Subcarrier Level: 2 V pp, ± 5%
Color Bars:
Luminance Amplitude Error: ± 1%
Chrominance Amplitude Error: ± 2%

PERFORMANCE
Subcarrier Frequency: 3.579545 MHz
Freerun Stability: ± 5 Hz from 0 to 50°C
Sync Timebase Error: < 2 ns
SC/H Phase Stability: 5°
H & V Lock Time: < 2 fields. Subcarrier phase stability when locked to ext. ref: < 2°

ADJUSTMENTS
H Blanking Width: 10.75 µs or 11.0 µs, selectable
V Blanking Width: 16.5 to 24 lines, selectable
Retiming Range: Relative to locking signal: Vertical (internal setting) 2 lines advance/1 line delay Horizontal (front panel, total +27 µs advanced to -35 µs delayed)

AUDIO TEST GENERATOR
Signal: 1 kHz (± 10%) sine wave
Level: Adjustable from -4 dBu to +8 dBu
Distortion: < 1% THD
Output Impedance: < 50 Ω, balanced
Power Consumption: 30 W max

INDICATORS/CONTROLS
Indicators: Reference present, subcarrier locked, power
Controls: Output phase, genlock on/off, audio gain



SCB-200N Rear connector layout

ORDERING INFORMATION

SCB-200N
Sync Pulse Generator w/Genlock

SCB-200MAN
Product Manual

CUSTOMER SERVICE PROGRAMS

CUSTOMER SERVICE/SUPPORT PROGRAMS

CUSTOMER SERVICE COMMITMENT

At Grass Valley Group, we offer quality services that enhance our quality products. Our Service Team delivers complete service solutions. Let our experienced professional staff support you as you build a state-of-the art network. We believe your SUCCESS starts when you buy a Grass Valley Group product --and we want to ensure you get your product started off right with the right level of assistance.

- On-Site Professional Engineers
- Experienced Technical Support
- Expert Trainers and Instructors
- Full-Service Networking Design Consultants
- Product Parts and Repair Specialists

SUPPORT PROGRAMS AVAILABLE

Grass Valley Group has built our support packages around critical product life cycles.

FIRST TIME PRODUCT PURCHASERS

For the first time buyer, we offer support services that will ensure your product gets off on the right foot, at drastically reduced package prices. A mix of services that will jumpstart your product.

- ProStart Bundle
- SmoothStart or Mini-SmoothStart
- IMPAK Training

ONGOING SUPPORT FOR ALL PRODUCTS:

Service Packages designed to make your job easier are excellent for non-technical staffed sites, or reduced staff facilities. Packages that provide long-term support with more on-site assistance, all at drastically reduced package prices.

- SureStep
- NextStep
- Preventative Maintenance Program
- Remote Diagnostic Services

If you don't want or need a complete package of services, choose from our wide selection of ala carte services:

- On-Site Professional Services
- 1-5 Year Comprehensive Service Contracts
- Factory or On-Site Training Services
- "On-Air" Critical Spares Kits
- 1-5 Year Advanced Exchange Service Contracts
- Annual Software Update Service Contracts
- Networking Services

Or create a custom contract that includes the services you need for your next project.

SERVICE PRODUCT DETAILS

PROSTART BUNDLE

A special support bundle that includes a 2nd year extended advance exchange contract and an on-site product commissioning. Get your product up and running and protected for a year beyond the initial warranty period.

SMOOTHSTART OR MINI-SMOOTHSTART

SmoothStart provides a complete product set-up that concurs with the initial product installation. SmoothStart varies from product-to-product, but typically includes an on-site product commissioning and a brief technical overview to familiarize you with signal functions and troubleshooting support and configuration knowledge. Some SmoothStart's will include an operational overview that covers the basic panel layout, overview display and system. Check which SmoothStart is offered for your product selection.

IMPAK TRAINING

Offers a rare opportunity to have a concentrated, training program in your own environment. Pull your team together for this super 2-day comprehensive training course (courses can have up to 5 participants per site, more than 5 is not recommended due to hands-on experience limitations) Course materials include:

- 1-Day Technical and Maintenance Training: This course focuses on "how to troubleshoot problems." Describes what steps your personnel can take to alleviate down time and expenses, and reviews system installation, configuration, signal flows, digital video concepts and control panel operations. The main emphasis of this course is troubleshooting resolution, which will increase your staff's productivity.
- 1-Day Operational Training: This course focuses on "how to use" product features and functions, overall system architecture, and how the product interfaces with other external devices. Increase your staff's product knowledge.

SURESTEP

Looking to move a product to a new location? Or need additional product setup? Choose our SureStep package. With SureStep you'll receive 2-Days of on-site professional set-up assistance, one seat in a factory training course and a follow-up visit that can be used as a question and answer session, or issue resolution meeting.

NEXTSTEP

Is a great product training tool for non-technical staff, or facilities that have recently lost key personnel. When you purchase a NextStep Support Package, you get over the phone technical training and troubleshooting/diagnostic support for your product.

PREVENTATIVE MAINTENANCE CONTRACT

Don't have time to keep your products maintained appropriately? Don't risk costly downtime, sign up for our 1-Year Preventative Maintenance Contract and receive a scheduled visit from our on-site field engineers every quarter. Our engineer will check out your product and provide maintenance or board replacements as needed. (Any parts required are additional, unless product is under warranty or service contract)

CUSTOMER SERVICE PROGRAMS

REMOTE DIAGNOSTIC SERVICES

Want help getting your product set-up for remote monitoring? Our remote diagnostic service provides diagnostic set-up services for your facility. Have our technical staff work with you to get your products accessible. Some additional hardware may be required. Want us to monitor your system for you? Purchase a bank of 36 technical support hours.

NETWORK PLANNING & CONSULTING SERVICES

Planning and designing a network requires trained professionals with the knowledge and experience. Our Systems Management Group (SMG) provides the networking, design, engineering, project management and consulting services you need for your next major project.

ON-SITE PROFESSIONAL SERVICES

Having an experienced on-site field engineer come to your location to help you with your latest project can save you time and money. Hire our expert staff to initialize and commission your next product. Professional Services includes product operation verification, performance testing, customer installation review, systemization and troubleshooting.

SPARES KITS

(Only offered on specific models for switchers, digital video equipment and servers). Having a spare parts kit on hand can alleviate the headache of downtime and minimize your exposure. So keep these "mission critical" spares on hand.

TRAINING SERVICES

The performance of your equipment depends on the training of your personnel. Choose the right training course for your technical team. Operational, Advanced Operational and Technical-Maintenance programs are available. Take your next training course at your own location or at one of our Educational Centers in Nevada City, California or Beaverton, Oregon.

Grass Valley Group introduces our new training alternatives– mini-seminars on the road. Look for a mini-seminar coming to your town in the year 2001 or sign up for a web-based training course. For complete up-to-date training schedules and registration information, log-on to our web site at www.grassvalleygroup.com/service/support/training

Check out our new Industry Educational Courses. Now Grass Valley Group provides technology courses that help your staff understand important broadcasting and media concepts. These courses are offered at our factory, on-site or under a custom contract. For complete up-to-date details, and course schedules log-on to our training web site and check out these new technology courses.

WARRANTY AND CONTRACT SERVICES

INITIAL WARRANTY COVERAGE

Grass Valley Group products are built to exact standards and are backed by an excellent hardware and software warranty -- one year or 15 months from date of shipment. Under warranty services you will receive these basic services:

- Technical Phone Support (regular business hours)
- On-line Frequently Asked Question Database
- Emergency "down" Service Support
- Advance Exchange on Product Parts

For Assistance Contact - Technical Support at (800) 547-8949 or contact the nearest office in your region.

COMPREHENSIVE SERVICE CONTRACT COVERAGE

An extended comprehensive service contract offers the Ultimate product protection for 1-5 years beyond the original warranty period. This added coverage offers the greatest economic value, and assures continual protection of your investment. Purchase an extended comprehensive warranty service and you'll receive these additional services:

- All of the above basic warranty services
- Priority Que Technical Support
- After Hour Technical Phone Support (free of charge)
- Proactive Software updates (does not include new feature releases or software applications)
- Minimum Parts fees are waived ($150)
- Same day shipment fees are waived ($500)
- 24 x 7 emergency part shipment services
- Spare Kit Replenishments (must notify factory)

For further information on purchasing a comprehensive service contract contact Service Sales at (800) 547-8949 Option 3, 2, or contact the nearest office in your region.

OTHER CONTRACT SERVICES

ADVANCED EXCHANGE CONTRACTS

With this contract you will receive advanced exchange of parts with same day shipment (if ordered by 2:00 PM Pacific Standard Time. Subject to part availability and shipping location)

TECHNICAL TRAINING SUPPORT - BANK OF 36 HOURS

With this contract you will receive 36 hours of technical support training. This contract is specifically designed for sites with limited or non-technical staff. Non-technical personnel can now get scheduled technical training over the phone. Purchased an older product and want some basic technical training? This contract is the ideal support for you.

REMOTE DIAGNOSTIC MONITORING - BANK OF 36 HOURS

With this contract you will receive 36 hours of technical support monitoring or assistance with Remote Diagnostic services. This contract is specifically designed for sites with limited or non-technical staff. Facilities who rely on non-technical personnel can now get remote diagnostic assistance over the phone.

CUSTOMER SERVICE PROGRAMS

EAME TECHNICAL SUPPORT

With this contract customers will receive technical assistance remotely at all times of the day in the EAME areas. This contract offers 24 hours a day, 7 days a week support, emergency telephone support and 24 hours a day 7 days a week part shipments. Under the technical support contract the customer simply calls a direct toll-free hotline number for assistance.

ANNUAL SOFTWARE UPDATE SERVICE CONTRACT

(Does not include any new feature releases or software applications)

With this contract customers will receive software updates of new product software revisions and software technical support.

CUSTOM CONTRACTS & TRAINING

With a custom contract you can pick and choose the services you need to complete a project or purchase ala carte the support services you need. Such contracts can include:

- System Advocate - hire a system specialist that understands your environment and is familiar with your needs.
- Special Training Contracts-Applications, Transition to High Definition, Networking for Television Engineers - hire our expert instructors to bring your staff up-to-speed on the latest technology.

To take advantage of any of our custom contract services, contact Service Sales at (800) 547-8949 Option 3, 2

WORLDWIDE SERVICE CONTACT LIST

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(includes Latin America and Canada)

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JAPAN
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Fax (813) 5484 3775

SOUTH EAST ASIA
Tel (65) 7328 729
Fax (65)7327 649

Note: Please visit our website www.grassvalleygroup.com under Contact Support. Click the country you wish to contact we will provide the name, address and phone number of Authorized Service Providers in your region.

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Englewood, CO 80111
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Fax (720) 482-2862

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What's new at the Grass Valley Group?
Keep up to date by visiting our Web site.
Learn about our software and hardware solutions.
Get detailed product specifications. Order spare parts.
Find out about upcoming training classes.
Get the latest information about Digicasting
- just point your browser to www.grassvalleygroup.com.

Quick links from the home page
take you directly to your interest area

Learn more about the Grass Valley solution that is right for your organization

Quick and easy access to in-depth information
about Grass Valley products

Complete on-line documentation

On-line system diagrams for all Digicasting Solutions

WORLDWIDE LOCATIONS

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Profile Operations
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Beaverton, OR 97006
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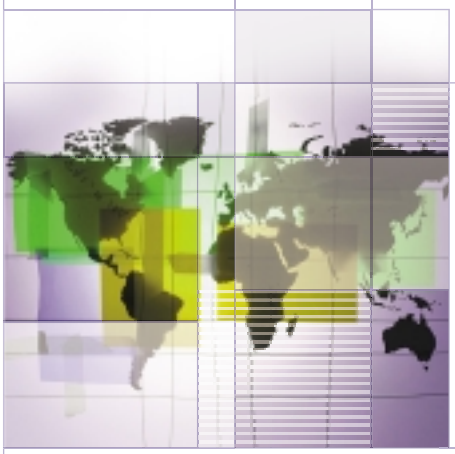
Vibrint Product Division
10 Presidential Way
Suite 300
Woburn, MA 01801
USA



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