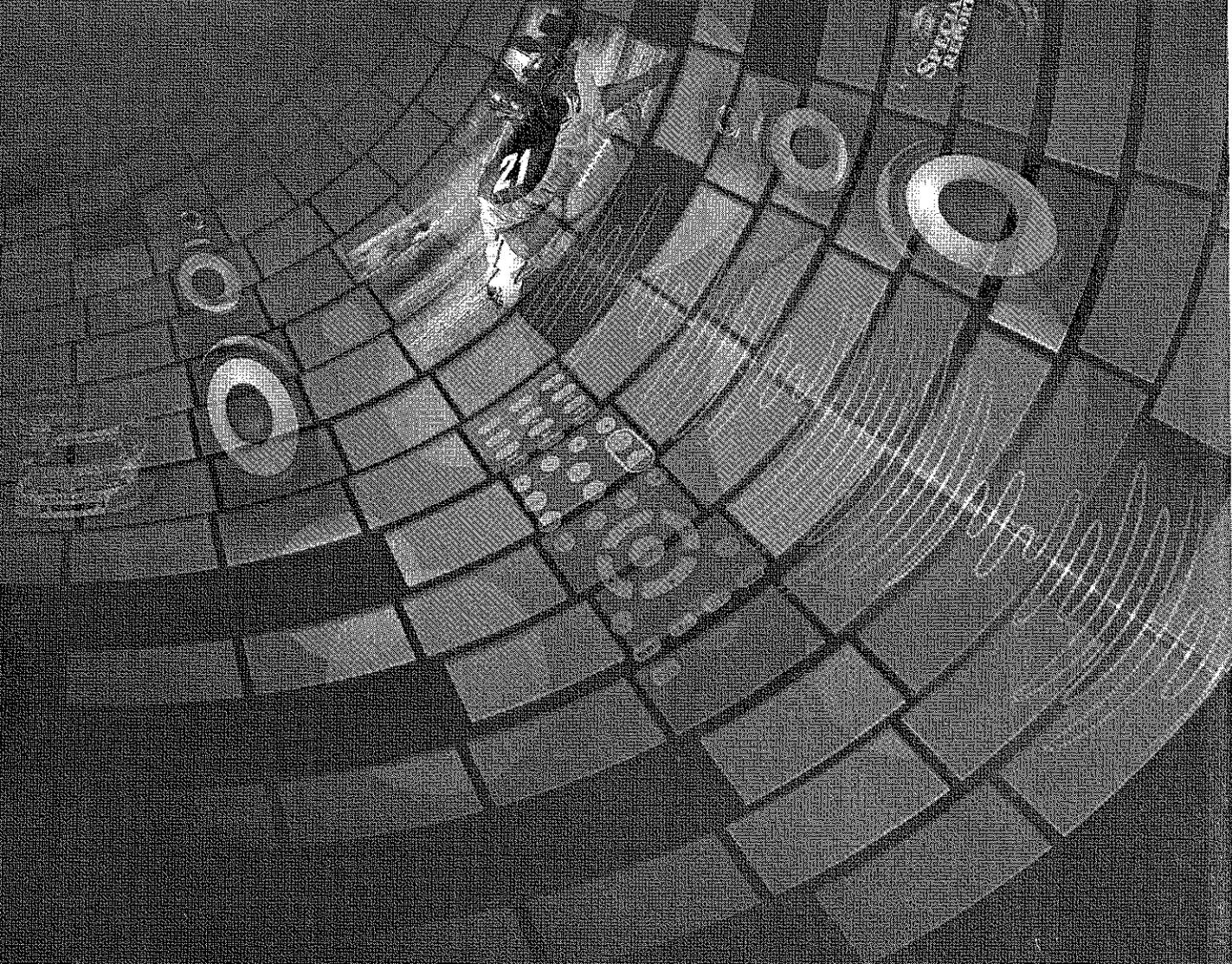


EXHIBIT 1

HARRIS®



Loudness Management Solutions

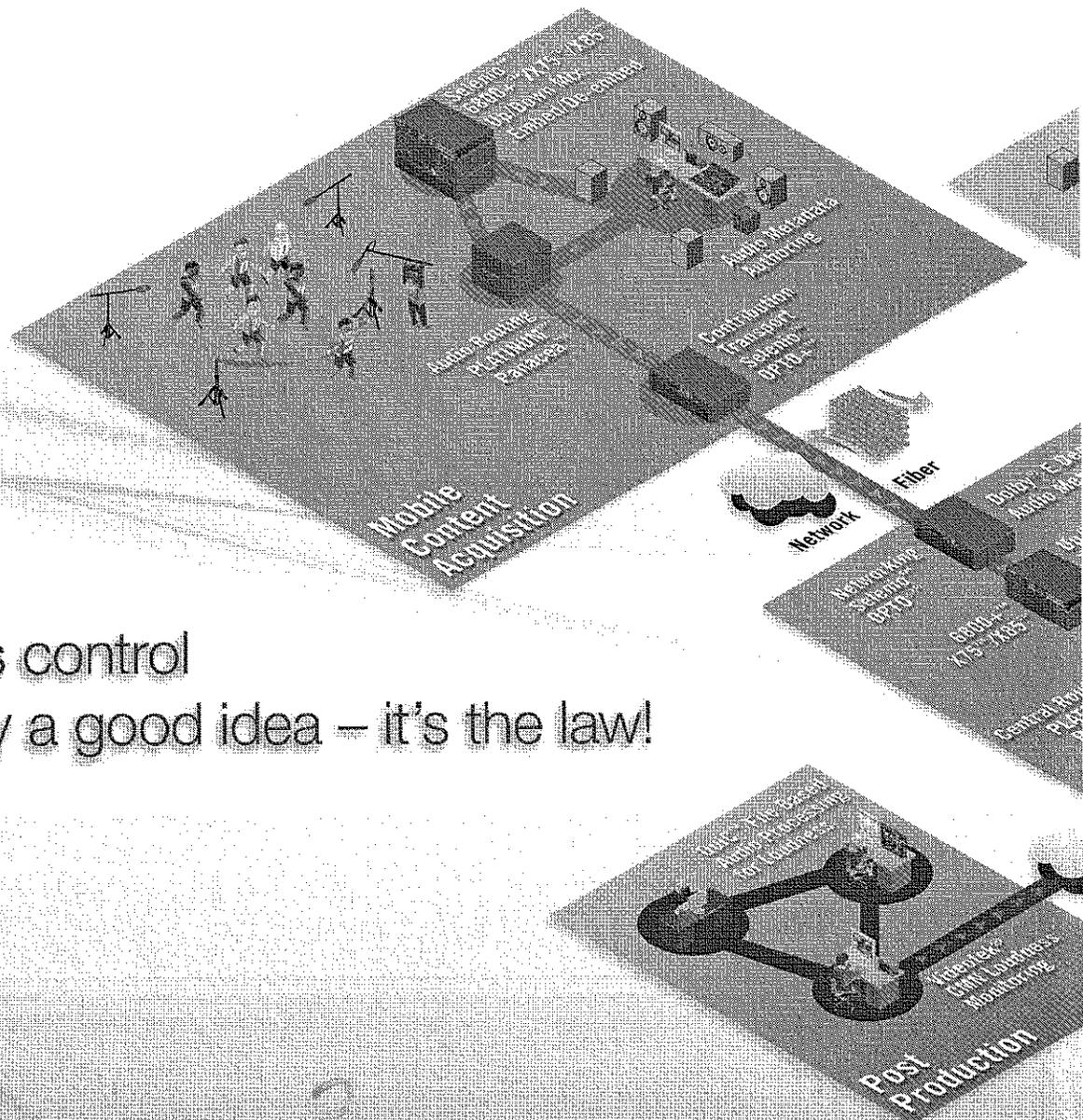
The scenario is all too familiar: The movie ends with a beautiful sunset and a soft melody. A second later, a salesman bursts onto the screen shouting the deal of the decade on a new car. The viewer, jarred and annoyed, scrambles for the remote.

Such dramatic shifts in program volume continue to vex the viewer in the living room, as well as broadcasters and content producers who must address viewer complaints or risk alienating their audience.

The problem of audio loudness has intensified as digital TV has taken hold and broadcasters have embraced the dynamic range of audio signals that can now be sent to the home. In this new world of digital, the dynamic range is such that the dialogue level in the mix varies greatly, compelling the viewer to grab the remote and adjust the volume to a more comfortable level. Although traditional compression technologies can assist with this issue, more modern techniques based on perceptual loudness measurement and correction provide a better-sounding result.

Complicating the issue is that loudness differences have proven challenging to measure with conventional equipment, and there is often a lack of correlation between how the audio signal measures and how the listener actually perceives it. Viewer frustration about the wide variation in audio loudness has led governments around the world to consider passing legislation. In the U.S., public discontent led to the recent CALM Act, which establishes rules and a timeline for broadcasters to achieve loudness consistency.

Taking control of loudness monitoring, measurement and correction is one of the most pressing issues for broadcasters today. The issue will continue to demand attention — as viewers continue to demand the best-possible viewing experience.

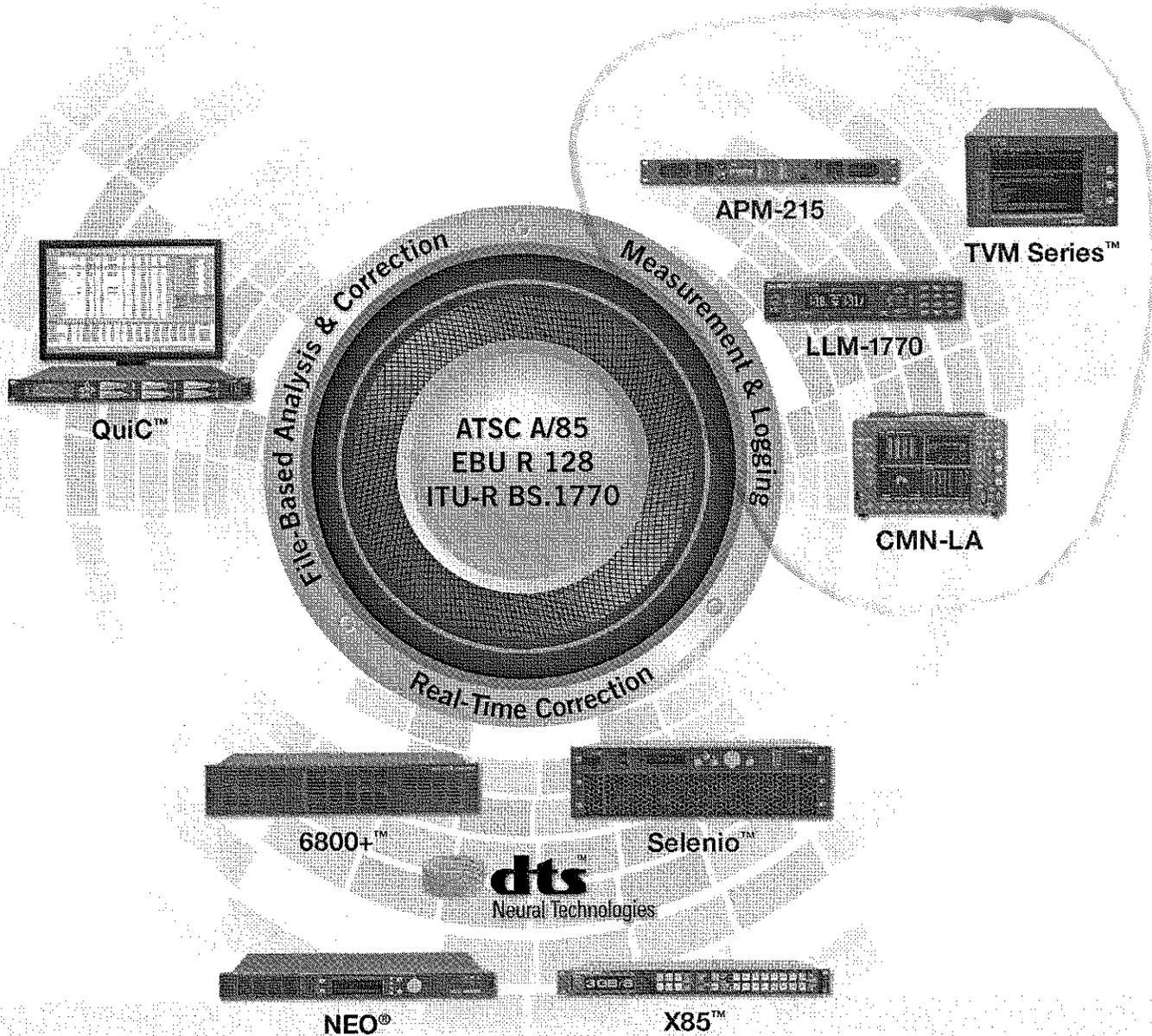


Loudness control
is not only a good idea – it's the law!

Harris Loudness Management

The Industry's Most Comprehensive Approach to Achieving Consistency in Loudness

Because loudness problems can occur at nearly any point in the broadcast chain, loudness should be measured and managed throughout the entire workflow — along with the metadata that impacts how the audio content is delivered — using a combination of real-time and offline tools. Harris helps content producers and broadcasters implement a cost-effective loudness management solution that addresses loudness measurement and correction at every stage of the broadcast workflow.



Harris loudness solutions are also fully compliant with current loudness requirements, supporting the broadly implemented ITU-R BS.1770 recommendation, which was developed using extensive listening tests, and the recommendations of ATSC A/85 (basis for the CALM Act) and EBU R 128.

From loudness measurement to real-time loudness correction to file-based loudness analysis, Harris loudness management solutions enable broadcasters to achieve outstanding loudness consistency — so the viewer can set the desired volume once, and then sit back and enjoy the show.

Loudness Measurement

Before loudness can be properly controlled, it must be measured correctly, using tools that quickly locate any problems and their source.

Effectively displaying and interpreting loudness measurement information is more important than ever, due to recent international standards and recommendations regarding loudness compliance. Harris loudness measurement solutions enable channel-by-channel examination of loudness trending, allowing loudness results to be viewed by program segment or the entire day of programming.

LLM-1770 loudness logger and monitor

A compact audio monitoring tool that makes it easy to confirm compliance with the latest loudness requirements.

The LLM-1770 ensures that loudness and true peak measurements are made to the ITU-R BS.1770 international loudness standard with five times oversampling. Settings are included that match the EBU R 128 and ATSC A/85 recommendations. A surround and a stereo program can be logged simultaneously. The LLM-1770 comes with four AES inputs, with an option for SDI embedded from SD, HD or 3 Gb/s sources.

CMN-LA loudness analyzer

A comprehensive audio measurement tool that helps content producers and distributors verify program integrity.

The CMN-LA loudness analyzer provides a variety of metering, metadata readout, alarming and data logging about the audio content under analysis. Loudness and true peak measurements are made to the ITU-R BS.1770 standard with five times oversampling. Metering of up to 16 channels simultaneously makes for rapid alignment checks. Built into the same chassis as the Videotek® Compact Monitor series, the CMN-LA incorporates the TC Electronic-created radar display, which shows loudness on a short-term meter, a graph covering periods from one minute to 24 hours, and numeric display of the long-term center of gravity (average loudness) and consistency (loudness range). The CMN-LA works with SDI embedded audio, with options for AES I/O and Dolby® decoding.

APM-215 stereo audio program monitor

A compact, multipurpose audio monitoring tool that guarantees superior audio fidelity.

The APM-215 is designed for ease of integration with the VTM Series™ multiformat rasterizers and TVM Series™ multiformat waveform monitors. Its high-quality audio and low distortion are achieved using a two-way speaker system with a wide volume control range and balance adjustment. Front-panel, direct-input mode switching allows the selection of stereo monitoring for up to 10 different channels. Two 10-segment, color LED bargraph meters are provided, as well as a phase indication LED.

TVM Series and VTM Series

Harris has also made loudness enhancements to its TVM Series of multiformat waveform monitors and VTM Series of multiformat rasterizers, allowing existing TVM/VTM Series users to upgrade to support the ITU-R BS.1770 standard, as well as the EBU R 128 and ATSC A/85 recommendations.



Real-Time Perceptual Loudness Control

When live material is being broadcast, broadcasters and network operators must quickly manage perceived loudness levels to a specific desired dialogue normalization. At the heart of all Harris loudness correction products is DTS Neural Loudness Control (NLC) — a complex, critical band-based measurement and control system that mimics the human perception of loudness. By detecting spectral and density differences, inter-channel relationships and temporal overlaps within the audio signal, NLC provides transparent processing and delivers a natural, open quality not found in traditional multiband compression technology.

DTS Neural Loudness Control has been integrated into the company's 6800+™ core processing platform, the X85™/75™ multiple-application video/audio platforms, the Selenio™ media convergence platform and the NEO® format conversion products. All Harris real-time control products feature the ability to interface to Dolby® encoded audio, as well as the ability to implement DTS Neural Surround™ UpMix/DownMix/MultiMerge.

6800+ Core Processing Platform

APM6801+

The APM6801+ module offers a simple, streamlined solution for managing today's advanced audio processing. The APM6801+ offers eight discrete AES inputs and outputs; and DTS Neural Loudness Control for up to 5.1+2.0 or 4x2.0 audio on a single module.

APM6803+

The APM6803+ multichannel audio processing station is a fully integrated loudness and surround sound processor. Flexible, user-defined workflows and intelligent metadata handling ensure that the right processing is applied at the right time, allowing broadcasters to meet regulations, while preserving the artistic integrity of the content. Features include SDI and discrete AES interfaces; full audio/video frame sync; automatic audio delay tracking for guaranteed lip sync; automation and manual control of loudness profiles; loudness and surround field protection; and mono-channel audio routing and proc amps.

X85/X75 Multiple-Application Video and Audio Platforms

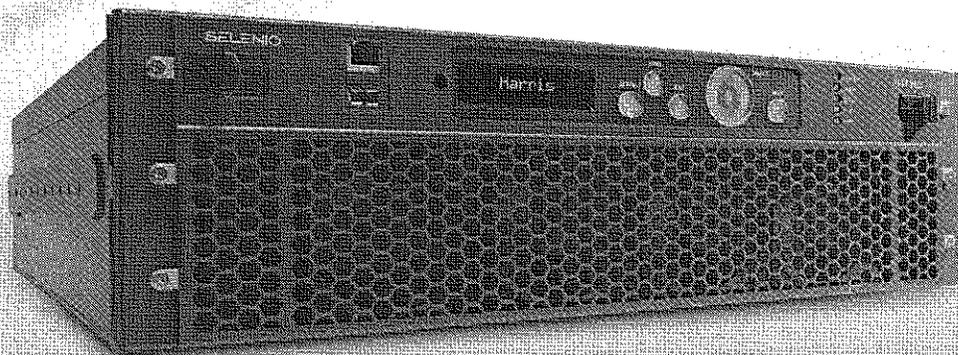
The 1RU X85 multiple-application video and audio platform offers an optional plug-in capability to support DTS Neural Loudness Control. Customers who currently have the 1RU X75 platform can add support for DTS Neural Loudness Control with a field upgrade.

Selenio Media Convergence Platform

Selenio — an industry-first modular platform combining traditional baseband video/audio processing, compression and IP networking — offers the optional ability to add DTS Neural Loudness Control to its frame synchronizer and conversion modules.

NEO Format Conversion

The NEO-based XHD-3903 format converter offers an optional plug-in capability to support DTS Neural Loudness Control. Customers who currently have the XHD-3903 module can add support for DTS Neural Loudness Control with a field upgrade.



File-Based Loudness Analysis and Correction

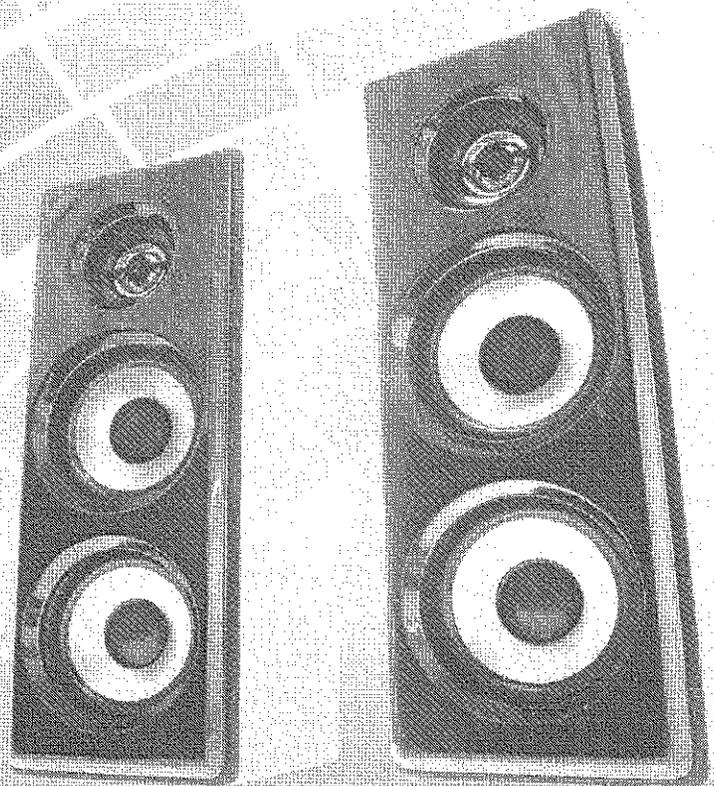
Increasingly, video and audio content is stored, repurposed and played from files, providing an opportunity to employ the full techniques of loudness analysis and use that analysis data to perform correction — without compromising dynamic range.

The Harris QuiC™ media analysis server is a fully automated, file-based test and measurement server platform that verifies the quality of compressed video, uncompressed audio and selected formats of compressed audio content residing on servers and storage networks — before content is distributed.

QuiC analyzes up to five mapped channels of audio at once for loudness (per ITU-R BS.1770), providing short-term loudness, consistency measurements and an overall “center of gravity” (average loudness over the entire run of a clip). Using optional file correction tools, coupled with the results of the loudness analysis pass, QuiC can then adjust uncompressed audio to a desired loudness level without compromising dynamic range. The analysis can be “faster than real time,” in parallel with video analysis processing, to enable full quality control of stored content — such as sports, music, news, commercials and movies — prior to air.

No matter the loudness issue, Harris can deliver a solution.

The Harris Advantage: We recognized as early as 2005 that loudness was becoming a major issue, and began field tests of our loudness-compliance products in 2007. Our loudness control solutions — the most comprehensive in the industry — are the culmination of years of internal research and development and extensive testing, as well as key industry partnerships.



ONE Company for Workflow Solutions Throughout the Media Chain

Harris is the ONE company delivering interoperable workflow solutions across the entire media delivery chain — providing today's broadcaster with a single, integrated approach to capitalize on the benefits of IT and mobile applications. By providing unparalleled interoperability across our product portfolio, Harris is able to offer customers integrated solutions that improve workflows, save money, enable new revenue streams and provide a migration path to emerging media business models. To meet the evolving needs of broadcast, distribution, government agencies and entertainment businesses, Harris is the ONE answer for change.

Service And Support

At Harris, we are committed to customer service excellence. It is our goal to provide the highest level of support by applying a simple rule: We take ownership of helping our customers succeed. Our support teams consist of innovative technical experts who support all situations regarding product performance, integration and operational processing. We are adept at providing proven solutions, making workflows better and ensuring reliability of the product and system. At Harris, our experienced and dedicated teams stand ready to help you meet your goals for premium product performance, 100% up-time and reduced maintenance investment.

Warranty

Because we want to assure you that Harris stands beside its products and system solutions, our products carry a standard set of warranty services, which are competitive with — and in some cases outperform — others in the industry.

Service Packages

We offer value-add services that allow you to customize the level of services you need in meeting mission-critical performance levels. Our service package options offer many ways to upgrade your standard warranty by choosing the All-Inclusive OnePak, or by selecting individual services from our extensive portfolio. Our service and support advisors can assist in the selection of the individual services that best suit your requirements.

North America	+1 800 231 9673
Caribbean and Latin America	+1 786 437 1960
Europe and Africa	+44 118 964 8200
Middle East and South Asia	+971 4 433 8250
Asia, Pacific Rim	+852 2776 0628

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EXHIBIT 2

MTG-3901, ACO-3901

Master Timing Generator System

The MTG-3901 master timing generator system is one of the many reasons Harris is leader in reference signal systems. The revolutionary architecture of the MTG-3901 master timing generator system sets new standards for performance, reliability and value.

The MTG-3901 comprises a primary and secondary MTG-3901 master timing generator module and ACO-3901 automatic changeover module - all fully integrated within a single NEO® frame. This revolutionary architecture, in addition to its high-density packaging, offers enhanced reliability when compared to conventional reference generator architectures.

Conventional reference systems are typically composed of separate master-clock and sync-pulse-generator systems. When combined with their own standalone automatic changeover units, these SPG systems consume additional costly rack space. In addition, these standalone systems are typically more expensive and lack sophisticated communication and redundancy features.

All modules in the NEO family can be controlled locally by means of an intuitive card-edge interface or remotely, using the NUCLEUS™ network control panel or CCS Navigator™.

FEATURES

- Fully integrated modular reference signal system
- High-density modular packaging for any application
- Comprehensive array of reference signals
- Integrated automatic changeover module for enhanced reliability
- Harris® CCS™-enabled

PRODUCT DETAILS

MTG-3901

The MTG-3901 master timing generator, with its comprehensive array of analog and digital reference signals, leverages the inherent performance, reliability and density of the NEO platform and is the ultimate high-performance, reliable, feature-rich reference signal generator.

- High-density modular packaging for any application
- Operates in conjunction with the ACO-3901 automatic changeover module for enhanced reliability
- CCS-enabled for remote configuration and monitoring

- Comprehensive array of reference signals
- Four independently timeable outputs configurable for analog composite black burst or tri-level sync
- VITC & ATR on blackburst outputs
- DARS
- LTC timecode (2)
- Impulse clock driver
- Available GPS time synchronization
- Onboard modem for synchronization to remote CSD-5300/3901/3902 and MTG-3901
- Onboard NTP server/client for synchronization of computer network

ACO-3901

The ACO-3901 is the next generation solution to the automatic changeover unit. Conventional automatic changeover units are typically packaged as a 1RU chassis that work in conjunction with standalone primary and redundant reference signal generators. The ACO-3901, by leveraging the inherent advantages of the NEO platform, offers superior performance and packaging density over conventional standalone automatic changeover units.

The ACO-3901 module when installed with two MTG-3901 master timing generators in a single NEO frame, offers enhanced reliability, performance and features when compared to any conventional reference signal generator system comprising of standalone reference signal generators and automatic changeover unit.

Features

- Automatic changeover unit on a single module.
- Installed with a primary and redundant MTG-3901 in a single frame for maximum density.
- Switching of all MTG-3901 output signals for enhanced reliability
- Remote configuration and monitoring via CCS.
- Hot-swappable front module with no loss of output signals.

Applications

The MTG-3901 master timing generator system should be utilized in any installation requiring both master clock and SPG functionality. The MTG-3901 supplies all the core reference signals typically required by a broadcast facility.

The MTG-3901 is also ideal for use in ENG, OB van or mobile applications where space is at a premium. When installed in a 1RU configuration, the MTG-3901 occupies from 2RU to 5RU less space than conventional SPG and master clock systems. 3RU configurations of the MTG-3901 can also be used effectively in space-restricted environments by allowing any additional modules to be installed in the same frame.

A new approach to reference signals

The MTG-3901/ACO-3901 master timing system's revolutionary integrated architecture offers additional enhancements when compared to conventional standalone reference signal generator systems.

The MTG-3901 features full integration of reference signal generation and autochangeover functionality. This facilitates enhanced reliability, functionality and lower costs.

The MTG-3901 is the only reference signal system with comprehensive network control and configuration via the Harris-engineered CCS. CCS offers an enhanced level of control and monitoring when compared to conventional reference systems.

The MTG-3901 utilizes a modular form factor. The modular architecture facilitates packaging the MTG-3901 with additional NEO modules. This allows for more efficient use of equipment rack space and simplifies system design and installation.

Utilizing absolute time reference (ATR) technology, the MTG-3901 features a deterministic relationship between all of its reference signals. This simplifies installation and system timing issues. Conventional reference generator systems cannot be locked together deterministically, thereby adding additional cost, complexity and maintenance.

Utilizing Nano-Lock technology, the MTG-3901 and all NEO advanced reference systems are able to offer even greater precision, reaffirming Harris as industry leader in reference systems.

When the MTG-3901 is locked via the GPS-3903 GPS receiver or via the onboard modem, the time difference between its own internal timing engine and the reference time is calculated. Using this information, the MTG-3901 updates its output time and slews its blackburst output timing to correspond with the new timing data. This ensures an accurate source of both time and black burst.

Integrated reference systems that supply both timecode and black burst without Nano-Lock technology can experience blackburst phase discontinuities during time synchronization. This is the result of a sudden shift in blackburst phase when realigning to new timing information acquired during the synchronization. Blackburst discontinuities are a potential source for disruptions for all downstream equipment within a facility.

In addition, the MTG-3901 uses this new timing information to make minute adjustments to its own internal timing engine. After all timing adjustments are complete, the master frequency of the MTG-3901's timing engine is adjusted to compensate for variations from the reference source. The MTG-3901's ability to self-discipline its internal timing engine ensures that extended operation of the MTG-3901 will result in maximum precision.

The MTG-3901 Master Timing Generator System utilizes advanced features for maximizing reliability.

Absolute reliability is a major feature of the MTG-3901 master timing generator. The integrated architecture of the MTG-3901 offers enhanced reliability when compared to conventional reference signal generators with standalone automatic changeover units. The MTG-3901 also leverages the inherent reliability of the NEO modular platform and sets a new standard for performance and reliability that has been unheard of in reference signal system platforms until now.

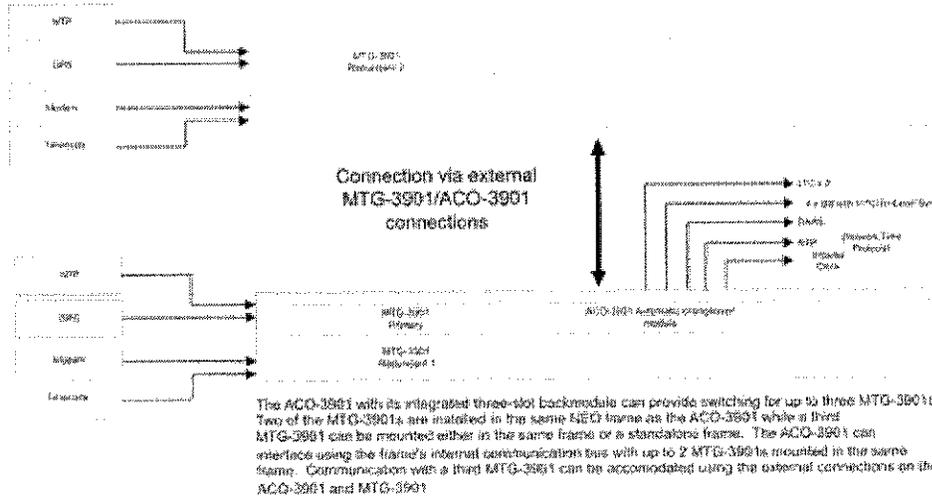
CCS - The MTG-3901 can be controlled and monitored via the Harris-designed Command and Control System. In addition to remote configuration, the status of the MTG-3901s and ACO-3901 can be continuously monitored. If a fault or alarm is detected, it can be instantly reported to the operator for immediate action via the CCS network. This minimizes the time necessary to respond to any potential problem.

DejaView™ - The MTG-3901 can come equipped with Harris® DejaView™ state recovery feature. This will significantly reduce the downtime associated with reconfiguring a new module.

Transparent Switching - The ACO-3901 features transparent switching between the primary and secondary MTG-3901.

Conventional autochangeover units will perform a non-synchronous switch from the primary to secondary SPG on detection of a fault. This hard changeover will be manifested as a discontinuity in the

reference signals and result in a potential disruption to any downstream devices locked to the reference generator. With the MTG-3901 Master Timing Generator System, switchover of the unaffected MTG signal outputs will be transparent with no discontinuities of the signal output. The ACO-3901s passive switching relays will also ensure a continuous signal in the event of a total failure of either the primary or secondary MTG-3901.



Switching of up to 3 MTG-3901-FMs - The ACO-3901, in addition to being able to switch two frame internal MTG-3901-FM modules, can also switch a third external source through the external backmodule connections. In the event of a failure of the primary MTG-3901-FM, the secondary MTG-3901-FM will continue operating with a backup, even if it is in failure mode. This is a considerable enhancement to overall system reliability.

Comprehensive monitoring and switching - The ACO-3901 can be configured to monitor and switch all of the output signals from its primary and secondary MTG-3901 modules. Conventional automatic changeover units typically do not offer switching of all of the outputs of their primary and secondary reference signal generators due to connector space limitations on the automatic changeover unit backpanel. This represents a major compromise in reliability. The integrated architecture of the MTG-3901 does not have this limitation.

Standalone power supply - The MTG-3901/ACO-3901 comes equipped with an external DC power jack for use with the PWRSUPPLY-MTG external AC power adapter. When using the MTG-3901 in 1RU frame configurations, power redundancy can be achieved with the onboard frame power supply and external AC power adapter. This facilitates the use of the MTG-3901 in applications requiring both high density and redundancy (mobile production trucks).

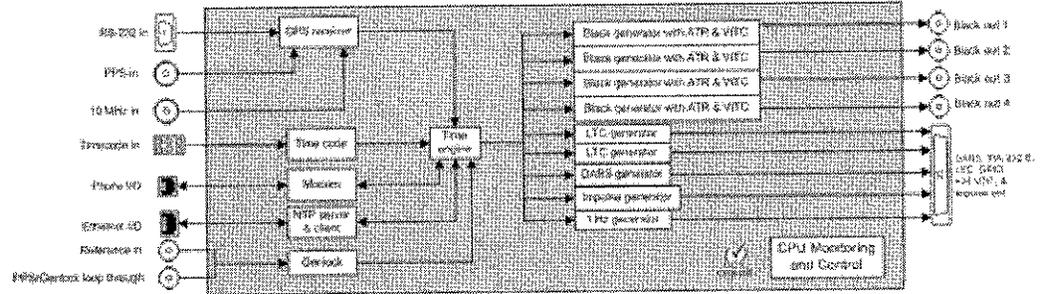
Simultaneous configuration - The MTG-3901 offers simultaneous configuration of the primary and secondary MTG-3901 modules. Changes in configuration to the primary MTG-3901 will immediately be reflected in the secondary MTG-3901. Identically configured primary and secondary MTG-3901s will minimize the potential for discontinuities associated with switchover from a primary to secondary reference signal source and simplify setup and maintenance.

The Harris® MTG-3901 provides a unique and innovative approach to reference signal generation.

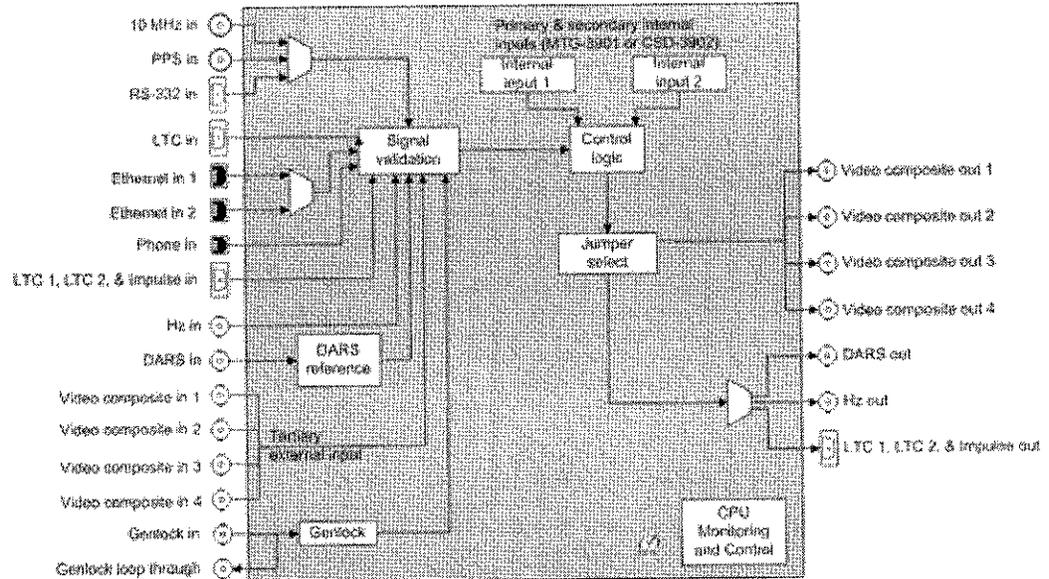
IMAGES/DIAGRAMS

Block Diagrams

MTG-3901

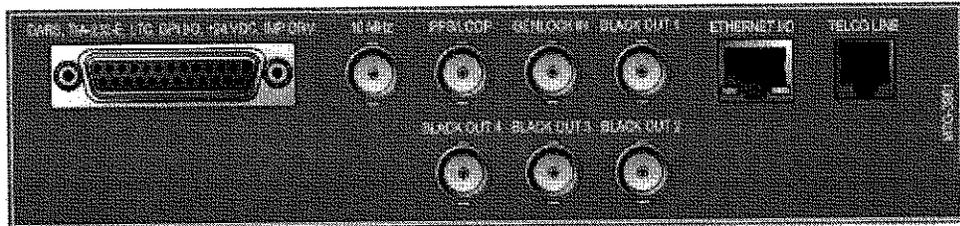


ACO-3901

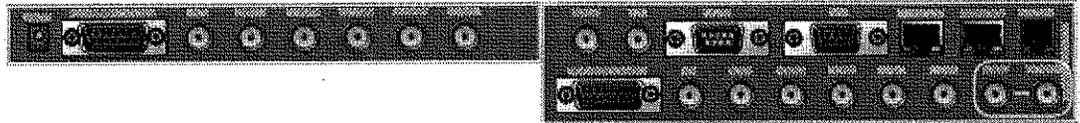


Back Modules

MTG-3901



ACO-3901



SPECIFICATIONS

Specifications and designs are subject to change without notice.

General

Power Dissipation	<20 W
Internal Battery Backup	3 V battery provides >8 hours of internal time keeping
External Power Supply Backup	24 V 1 ADC input powers entire module
Heartbeat	Heartbeat LED pulses periodically indicating internal timekeeping is alive

DARS

Electrical	Single-ended unbalanced
Mechanical	Pin 24

Impulse Drive

Electrical	Single-ended unbalanced
Mechanical	Pins 1 and 12
	12 V Pulses (300 m/s)
	Can be configured to low-level voltage to work with the ACO-3901

EIA/TIA-232-E

Electrical	EIA-232 DTE
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LTC

Input (TCI)

Electrical	Differential balanced
Mechanical	Pins 14 (LTC), 15 (LTC), 16 (GND)
Format	SMPTE/EBU LTC 24/25/30 drop/non-drop auto-sensing
Impedance	Hi-Z (>30 k ohms) or 600 ohms, jumper selectable
Input Sensitivity	500 mV pk-pk
CM Range	±10 V
CMRR	40 dB at 60 Hz

Output 1 and 2 (TC1, TC2)

Electrical	Differential balanced
Mechanical (output 1)	Pins 17 (LTC), 18 (LTC), 19 (GND)
Mechanical (output 2)	Pins 9 (LTC), 10 (LTC), 11 (GND)
Format	SMPTE/EBU LTC 24/25/30 drop/non-drop support

Impedance	Low-Z (<25 ohms per side) or 600 ohms, jumper selectable
Level	3.9 V pk-pk nominal into 1 k ohms (Low-Z output)
Level	2.5 V pk-pk nominal into 1 k ohms (600 ohms output)
Transition time	40 μ s \pm 4 μ s measured at 10% and 90% amplitude

GPIO

IO1—Trigger Input

Electrical	5 V TTL-compatible HCT
Mechanical	pin 21
Impedance	10 k ohms
Trigger Capture Accuracy	Better than 20 μ s

IO2—HZ Output

Electrical	5 V TTL-compatible HCT
Mechanical	pin 23

24 VDC IN

Electrical	24 VDC, 1 A backup power input
Mechanical	Pins 13, 25

PPS Input or Genlock Input Loop-back (PPS/Genlock Loop)

Mechanical	BNC connector
Termination	50 ohms if configured as PPS Input, not terminated if configured as Genlock input loop-back

PPS:

Level	TTL; V_{ih} =2.0 V min, V_{il} =0.8V max
Edge Transition	20 ns maximum
Return Loss	>45 dB to 20 MHz

Genlock Input (Genlock In)

Electrical	Single-ended unbalanced
Mechanical	BNC connector
Termination	Not terminated if loop-back BNC is available; otherwise terminated
Format	NTSC/PAL with VITC and ATR, or TLS input
Level	1 V pk-pk +6 dB/-4 dB NTSC/PAL, 0.6 V pk-pk +6 dB/-4 dB TLS (SMPTE 274M)
Return Loss	>40 dB to 20 MHz
Lock Range	\pm 6 ppm (NTSC f_{SC} \pm 21 Hz, PAL f_{SC} \pm 26 Hz)

Video Output (Black Out)

Electrical	Single-ended unbalanced
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Mechanical	BNC connector
Termination	75 ohms
Format	NTSC/PAL-B/PAL-M blackburst with VITC and ATR, or TLS output
Level (into 75 ohms)	1 V pk-pk NTSC/PAL, 0.6 V pk-pk TLS (SMPTE 274M)
Return Loss	>40 dB to 20 MHz

10 MHz Input

Termination	50 ohms
Mechanical	BNC connector
Level	2 V pk-pk \pm 3 dB

10BASE-T Ethernet

Mechanical	RJ45 Connector
Network Interface	IEEE 802.3 (Ethernet) 10Base-T interface for NTP application

Telephone Line (Telco Line)

Mechanical	RJ11 Connector
Telephone Interface	FCC-68 and Industry Canada CS-03 compliant
Signaling	Bell 103 (300 b/s)
REN	0.2 "A"

NEO MI REF and REFD LVDS and proprietary single-ended signal on NEO MI

ORDERING INFORMATION

MTG-3901-SYS-1	MTG-3901 system with FR-3901 frame. Includes 2 MTG-3901-FM modules, 1 ACO-3901 module, FR-3901 frame with blank front panel, power supply, detachable power cord, PWRSUPPLY-MTG standalone external secondary power supply, back modules (as required), fan module, alarm interconnect module, accepts any combination of up to 1 additional NEO series module
MTG-3901-SYS-1E	MTG-3901E system with FR-3901-E frame. Includes 2 MTG-3901-FM modules, 1 ACO-3901 module, FR-3901-E frame with blank front panel, power supply, detachable power cord, PWRSUPPLY-MTG standalone external secondary power supply, back modules (as required), fan module, 3901RES-E resource communication module, accepts any combination of up to 1 additional NEO series module
MTG-3901-SYS-1P	MTG-3901E-P system with FR-3901-E frame, includes 2 MTG-3901-FM modules, 1 ACO-3901 module, FR-3901-E-P frame with local control panel, power supply, detachable power cord, PWRSUPPLY-MTG standalone external secondary power supply, back modules (as required), fan module, 3901RES-E resource communication module, accepts any combination of up to 1 additional NEO series module
MTG-3901-SYS-3	MTG-3901 system with FR-3923 frame, includes 2 MTG-3901-FM modules, 1 ACO-3901

module, FR-3923 frame with blank front panel, power supply, detachable power cord, PWRSUPPLY-MTG standalone external power supply, back modules (as required), fan module, alarm interconnect module, accepts any combination of up to 9 additional NEO series module

MTG-3901-SYS-3E	MTG-3901 system with FR-3923 frame, includes 2 MTG-3901-FM modules, 1 ACO-3901 module, FR-3923 frame with blank front panel, power supply, detachable power cord, PWRSUPPLY-MTG standalone external power supply, back modules (as required), fan module, alarm interconnect module, accepts any combination of up to 9 additional NEO series module
MTG-3901-SYS	MTG-3901 system module set, includes 2 MTG-3901-FM modules, 1 ACO-3901 module, PWRSUPPLY-MTG standalone external power supply, requires 3 available slots in NEO frame. NEO frame not included
MTG-3901	NEO modular master reference signal generator. For standalone use in NEO module. BB, tri-level sync, timecode, NTP, DARS output. Includes front module and double height backmodule. Requires 2 unused slots for installation in 1RU or 3RU NEO frame
PWRSUPPLY-MTG	Standalone external secondary power supply for MTG-3901 systems
MTG-3901-FM	NEO modular master reference signal generator. BB, tri-level sync, timecode, NTP, DARS output. Includes front module only. 2 MTG-3901 modules must be installed with ACO-3901 in same frame, no standalone operation. Requires installation in 1RU or 3RU NEO frame
ACO-3901	NEO automatic changeover module for MTG-3901. Includes single slot front module and 3 slot back module. Operates in conjunction with 2 MTG-3901 modules only. Requires installation in 1RU or 3RU NEO frame
GPS-3903	GPS receiver for time synchronization

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EXHIBIT 3



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Harris Corporation's Inscribe TitleOne Character Generator Scores Points with STATUSfirm on Curltv.com Webcasts

CINCINNATI/EDMONTON, Alberta, January 23, 2007 — STATUSfirm in Edmonton, Alberta, Canada, a leader in the creation of internet entertainment, information and education, is using an Inscribe® TitleOne™ standard-definition character generator from Harris Corporation (NYSE:HRS) to webcast live curling events on Curltv.com.

"TitleOne™ with the RTXports™ option is the perfect character generator for this application," said STATUSfirm Vice President David Nedohin. "Its ease of use and ability to automate the front-end operator interface made it far more attractive than any other character generator on the market. It also gives us a lot of room to grow as we expand our webcasting capabilities."

Serving as a news and information portal for the international curling community, Curltv.com is the first Web site to stream live curling competitions over the Internet. Its production standards mirror those of a regional sports cable network, with each webcast featuring multiple camera angles and extensive on-air graphics. Because the site's producers at STATUSfirm had no traditional broadcast television experience, utilizing a graphics system that was both powerful and simple to use was essential. The TitleOne SD character generator with the RTXports option proved to be the ideal solution.

The Harris Inscribe team worked closely with STATUSfirm to produce a custom graphics package for the curling webcasts. Each competition is covered by a crew of just three or four people. With such a small team, the Curltv.com commentator doubles as a character generator operator throughout the match, updating the on-air score and inserting key lower-third graphics, including match and player statistics, as required. The score "bug" is a small GUI of a flashing curling stone in motion. When the stone stops, the score is updated in real time. This capability was developed using the RTXports™ application, which sits on the top-most graphics layer and runs simultaneously with all elements in the TitleOne™ playlist. Most competing character generator systems use a separate, dedicated module for this type of custom graphics application.

The first competition for which STATUSfirm employed the TitleOne™ system was the Myers Norris Penney Charity Classic in October 2006.

"The great thing about TitleOne™ and the automated score bug designed for us by Harris is that we are able to produce sophisticated programming very easily, even with no traditional broadcast experience," says Nedohin. "The TitleOne system is very important to the success of CurlTV.com for the current season, and it will likely be a big part of our future programming on other STATUSfirm networks."

TitleOne™ is an entry-level character generator that offers broadcast-quality graphics at an affordable price. Suited for any broadcast situation, the system features high-end effects such as rolls, crawls and transitions, providing a specific advantage to smaller market stations and nontraditional broadcasters such as churches, stadiums, colleges, local governments and corporations. TitleOne™ comes standard with features designed to help broadcasters get to air quickly, and options that allow users to upgrade their TitleOne system as their needs and budget change.

About Harris Corporation

Harris is an international communications and information technology company serving government and commercial markets in more than 150 countries. With headquarters in Melbourne, Florida, the company has annual sales of \$3.5 billion and nearly 14,000 employees — including more than 6,000 engineers and scientists — dedicated to the development of best-in-class assured communications™ products, systems, software and services. The company's operating divisions serve markets for government communications, RF communications, broadcast communications, and microwave communications. Additional information about Harris Corporation is available at www.harris.com.

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Character generator

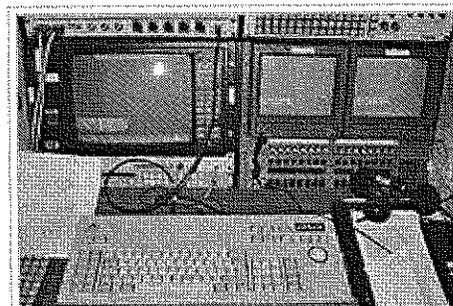
From Wikipedia, the free encyclopedia

A **character generator**, often abbreviated as **CG**, is a device or software that produces static or animated text (such as news crawls and credits rolls) for keying into a video stream. Modern character generators are computer-based, and can generate graphics as well as text. (The integrated circuit, usually in the form of a PROM, that decodes a keystroke in a keyboard, and outputs a corresponding character, is also referred to as a "character generator.")

In the television business in North America, the digital on-screen graphics generated by character generators are also often called "Chyrons", after the Chyron Corporation, whether or not Chyron made the character generator. Similarly, in the United Kingdom, such graphics are often called "Astons", after Aston Broadcast Systems. These are examples of somewhat genericized trademarks. Even though genericized trademarks are present, it is generally known throughout the world that other character generator companies exist.

Character generators are primarily used in the broadcast areas of live television sports or television news presentations, given that the modern character generator can rapidly (i.e., "on the fly") generate high-resolution, animated graphics for use when an unforeseen situation in a broadcast dictates an opportunity for breaking news coverage—for example, when, in a football game, a previously unknown player begins to have what looks to become an outstanding day, the character generator operator can rapidly build a new graphic using the template "shell" of a similarly-designed graphic. The character generator is one of many technologies used to meet the demands of live television, where events on the field or in the newsroom dictate the direction of the coverage. As character generator development has progressed, the distinction between hardware and software generators has become less distinct as new platforms and operating systems evolve to meet the live television consumer's expectations.

Before character generators were available, the primary method of adding titles to video images was to dedicate one camera to shooting white letters on a black background, which then was combined with the video from a live-action camera to form what appeared to be a single image with white letters seemingly superimposed over it. In fact, to this day (and despite the fact that this technology is long-since antiquated by the modern CG) some directors of live TV continue to order the Technical Director (TD) to "add the super" when they want the CG output "superimposed" over the image of another camera. As technology advanced, the ability to "key" (compositing) these white letters over live video became available, involving electronically "cutting a hole" (analogous to cutting a keyhole) in the shape of the letters from the title camera and then electronically adding the letters to the holes cut into the live action camera image. Again, some directors today still call this "keying the graphic". Finally, the modern CG allowed not only more precise and realistic "keying", but also the addition of multiple picture elements from the CG to further the illusion of a 3-dimensional graphic physically overlying a video image. Today, the addition of full-motion graphics from the CG and the animation of graphic elements by the CG blurs the line between "character generator" and "computer graphics", combining the CG's ability to elegantly present graphics and video with the computer's ability to interface with game scoring and timing systems, to keep running totals of an athlete's performance on the field or the court and to derive statistics both for individual players and the teams involved, and to interface with computer systems located at other game venues or at a television network's master control central broadcast center. Today, when you watch a sporting event on television, you're likely seeing a score bug which not only contains



An Aston *Ethos* hardware character generator

CG data from that game, but CG data from other games in progress, other games already completed, and games yet to come, all in an effort to keep you, the viewer, from having to "channel surf" to another station to watch another television program. And the less often you surf away to another station, the more often you see television advertising (also included in CG output) which then generates revenue for the television network.

Although the distinction between hardware and software CGs is becoming less evident as technology advances, and as consumer-grade computing equipment becomes more graphically sophisticated, it remains easiest to view CG's as either hardware- or software-dependent.

Hardware character generators

Hardware character generators are used in television studios and video editing suites. A desktop publishing-like interface can be used to generate static and moving text or graphics, which the device then encodes into some high-quality video signal, like digital Serial Digital Interface (SDI) or analog component video, high definition or even RGB video. In addition, they also provide a key signal, which the compositing vision mixer can use an alpha channel to determine which areas of the CG video are translucent.

Chyron Corporation developed the character generator specifically for broadcast use. The term lower third was developed to describe the chyron machine font that was predominately on the lower part of the TV screen. The original chyron was the only hardware that all professionals in the industry used for 2D and 3D graphics.

Software character generators

Software CGs run on standard off-the-shelf computer hardware and are often integrated into video editing software such as non-linear editing system (NLE). Some stand-alone character generator products are available, however, for applications that do not even attempt to offer text generation on their own, as high-end video editing software often does, or whose internal CG effects are not flexible and powerful enough. Some software CGs can be used in live production with special software and computer video interface cards. In that case, they are equivalent to hardware generators.

See also

- 1st & Ten (graphics system)
- Acknowledgment (creative arts)
- Barker channel
- Billing (filmmaking)
- Broadcast automation
- Broadcast designer
- Clean feed (TV)
- Closing credits
- Credit (creative arts)
- Digital asset
- Digital on-screen graphic (BUG)
- Graphics coordinator
- Local insertion
- Lower third
- Motion graphic design
- News ticker
- Opening credits
- Production logo
- Rasterisation
- Score bug
- Station identification
- Side-By-Side (graphic)
- Text mode
- Title sequence
- Video production
- WGA screenwriting credit system

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Categories: Film and video technology | Television terminology

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EXHIBIT 4

Inscriber® G7™

High Performance, Single- or Dual-Channel, HD/SD Broadcast Graphics System



Designed to meet the “big picture” graphics requirements of today’s broadcasters, the Harris® Inscriber® G7™ solution offers a full suite of broadcast graphics tools combined with professional-grade hardware components in a single 4RU chassis. The G7 platform has been designed to be a top-of-the-line, single- or dual-channel Character generator that delivers the robustness and reliability professional broadcasters demand. Featuring the Altitude™ Express graphics board, standard system and media drive redundancy, NVIDIA® GPUs and the latest processor technology, the G7 provides the fastest and most reliable system available.

Software tools, including the powerful Inscriber G-Scribe™ creation and playout software, Intelligent Interface® and MOS support, Connectus® integration, RTX NET™ API and Inscriber® G-3D™ design option, optimize workflow while achieving new levels of graphics quality. Combined with hardware features such as 2D and 3D DVE capabilities, video ingest, and dedicated second-channel hardware components, the G7 platform uniquely integrates the functionality of multiple broadcast graphics products into a single system solution. (* Some components optional)

EXHIBIT 5



visual effects generators

Search

About 6,400,000 results (0.21 seconds)

Everything

Images

Maps

Videos

News

Shopping

More

Orlando, FL

Change location

All results

Related searches

More search tools

Ad for visual effects generators

Why this ad?

Yamaha Generators | YamahaGenerators.com
www.yamahagenerators.com/
Complete Line of Yamaha **Generators** Free Shipping, Low Price guarantee

Download wGoom 1.9.4 Free - A visual effects generator for mp3 ...
www.softpedia.com > ... > Multimedia > Graphic > Graphic Others
Sep 18, 2007 -- Download wGoom - A **visual effects generator** for mp3 players.

Goom - An Open Source visual effects generator - YouTube



www.youtube.com/watch?v=1E5FJFrZmrA
Feb 16, 2009 - 5 min - Uploaded by FireUnitU
http://www.ios-software.com/?page=projet&quoi=1&lg=AN -
Goom is a **visual effects generator** for mp3 ...

"Burst Generator" Video by Todd Kumpf, 3D & Visual Effects Artist ...



www.youtube.com/watch?v=cli92ishOC0
Dec 22, 2009 - 2 min - Uploaded by MrParticle
Inspired by audio visualizers that are automatically generated by music, Todd took it to the next level and ...

Shield Generator Explosion Visual Effects Test on Vimeo



vimeo.com/39537553
Mar 31, 2012
Test for a film that will hopefully be made over the summer.

More videos for **visual effects generators** »

Special Effects Generator Buyer's Guide

www.videomaker.com/article/7283/
Special effects do not lie solely in the digital realm. Take a gander at our linear SEG and switcher grid.

**Character Generators
Special Effects Generators
Video ...**

www.vidinc.net/chargen.html
Character Generators | **Special Effects Generators** | Non Linear| Video Switchers

 ... EDIROL V8 Eight Channel Video Mixer with Effects - EDIROL LVS 400 ...

FXhome EffectsLab Lite - Special Effects Generator

avaxhome.ws > Software > Sorted by Type > Multimedia related
Apr 1, 2008 -- FXhome EffectsLab Lite - **Special Effects Generator** | 17 Mb
FXHome's EffectsLab Lite is the stand-alone particle generator portion of VisionLab ...

GOOM as native visual effects generator - Hydrogenaudio Forums

www.hydrogenaudio.org > ... > foobar2000 > General - (fb2k)
1 post - 1 author - Dec 21, 2007
well, to make it short: i've seen many **visual effects generators** like geiss, g-force, milkdrop, projectM... by playing around with vlc i found goom ...

FxFactory 2.6

www.noiseindustries.com/support/fxfactory260/
This version of FxFactory makes our most essential **visual effects** available in Final ...
More than 140 effects, **generators** and transitions from FxFactory Pro are ...

Patent US5694260 - Video visual effects generator - Google Patents

www.google.com/patents/US5694260
A **visual effects generator** for use with the image output of a video screen provides multiple secondary images and reflections dispersed through a wide visual ...

Ads for visual ... - Why these ads?

Echolab Special Effects Generator Model Series 600 ...
\$345.00 - eBay
Buy It Now from eBay
Top-rated Sellers!

Animation & Visual FX

www.elementcreative.com/
Full-service Animation, **Visual FX** & Interactive Media studio.

Home Depot Generators

www.homedepot.com/
homedepot.com is rated
Find a Wide Selection at Affordable Prices Today. Power More For Less.

Special Effects Generator Sale

special-effects.buycheapr.com/
Buy **Special Effects Generator** And Save Big - Low US Shipping & Fast!

70% Off Power Generators

www.homesshine.com/
All Major Brands Are On Clearance. An Online Only **Special**. Order Now!

Special Effects Generator

www.ebay.com/cameras
ebay.com is rated
Huge selection of Video Production. eBay! Buy it new. Buy it now.™

Paper and Vapor FX

www.paperandvaporfx.com/
Unique Event **Effects** in Central FL. Specializing in confetti and fog

Cheap Portable Generators

generators.shopcompare.net/
Low Prices on Portable **Generators**. Quality **Generators** Shipped Free!

Vfx Roto Camera tracking

www.5edigital.com/
we can do all your painstaking rotoscoping & camera tracking works

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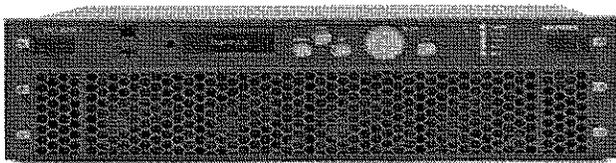
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EXHIBIT 6

SEL-MDX1

Transport Stream Multiplexer/Demultiplexer



The Selenio SEL-MDX1 encapsulator and multiplexer module makes it easy to multiplex, demultiplex, remultiplex or encapsulate streams for transport. Incoming programs can be readily repurposed into new programs, local content (commercials, news and more) can be easily added to existing programs, and new transport streams can be quickly generated.

The unique internal connectivity in the Selenio platform provides unprecedented flexibility. Content can be easily routed from a variety of sources, including MPEG-2 and H.264 encoder modules, various internal network interfaces such as DVB-ASI, and incoming transport streams from Gigabit Ethernet.

With features including DVB scrambling and conditional access (CA) enabled by a Simulcrypt interface, the Selenio multiplexer is ideal for contribution and distribution functions, as well as Direct-to-Home (DTH) market applications.

FEATURES

- Back module configurations (two)
- HD-BNC
 - Eight ASI/SMPTE 310 inputs/outputs on HD-BNC
 - 10 MHz reference input on HD-BNC
 - GPS one pps sync input on HD-BNC
- HD-BNC and RJ-45
 - Five ASI/SMPTE 310 inputs/outputs on HD-BNC
 - 10 MHz reference on HD-BNC
 - GPS one pps sync input on HD-BNC
 - 10/100Base-T on RJ-45 for Simulcrypt server
- Transport stream input/output
 - Configurable as input or output per port
 - Configurable DVB-ASI or SMPTE 310 output per port
 - MPEG format 188/204 bytes per TS packet (188-byte internal only)
 - Data rate set from 2 pps internal time base, frame or GPS reference
 - Total module bandwidth – 800 Mb/s
 - Total programs supported across module - 240
 - Total PIDs supported across module – 4096
 - PID or program multicasting, up to eight destinations
- Multiplexing
 - Creation of up to eight individual multiplexes
 - Program multiplexing
 - Mirroring of odd numbered port to next even numbered port
 - PID insertion
 - Unreferenced PID insertion
 - High/Low service prioritization
 - Automatic or manual PID/program numbering
 - Mux bypass (pass through)
 - Data carousel
 - Remote/local statistical multiplex of encoders
 - Output modes CBR and capped VBR
 - Opportunistic data insertion
 - IP to IP multiplexing
- Conditional access
 - BISS or DVB Simulcrypt
 - Up to 240 control words
 - Maximum data rate of 200 Mb/s
- Demultiplexing
 - Up to eight individual multiplexes can be received
 - Program demultiplexing
 - PID extraction
 - Demux bypass (pass through)
 - Demux output streams can be CBR or capped VBR
 - Can do IP to IP demultiplexing
- Gigabit Ethernet
 - Access via frame data network
 - Number of SPTS streams supported (in/out): 240/240
 - Support for unicast and multicast reception/transmission
 - Source-specific joins supported with multiple sources (IGMPv3)
 - FEC and encapsulation as per SMPTE 2022
 - Network jitter buffer and PCR recovery
- SFN adaptation
 - DVB, SFN adaptor functions
 - DVB MIP insertion
 - 10 MHz and one pps timing input
- SI/PSI processing
 - Support for combining of PAT, PMT and SDT tables
 - Support for inclusion of static tables via data carousel
 - Support for inclusion of streaming tables as TS input stream
 - Integrated with third-party PSI generation system(s)
 - Concurrent support for static and dynamic table

PRODUCT DETAILS

The Selenio multiplexer is capable of accepting unencrypted programs from a variety of sources — from local encoders to network interfaces, including ASI or Gigabit Ethernet. It includes a Simulcrypt synchronizer to request information from a conditional access system over a dedicated Ethernet connection. Each program is encrypted using DVB common scrambling, and Entitlement Control Messages (ECM) are multiplexed into each stream to provide a DVB-compliant output.

The encryption engine supports 240 user-accessible simultaneous programs at a combined rate of up to 214 Mb/s. When not using encryption, the multiplexer supports up to an 800 Mb/s throughput.

External connections can include up to eight software-selectable independent inputs or outputs that can handle either DVB-ASI or the SMPTE 310M protocols.

Back Module Connectivity

The SEL-MDX1 mux/demux application module offers two choices for back module external connectivity — one with HD-BNC electrical connections for eight input or output ASI signals and one with HD-BNC electrical connections for five input or output ASI signals, and RJ-45 100Base-T connectivity to support conditional access.

SDI and ASI interfaces utilize a Belden-type 1505A, 1694A or 1695A cable with HD-BNC connectors. A cable removal tool is provided for these types of HD-BNC connections.

SEL-MDX1

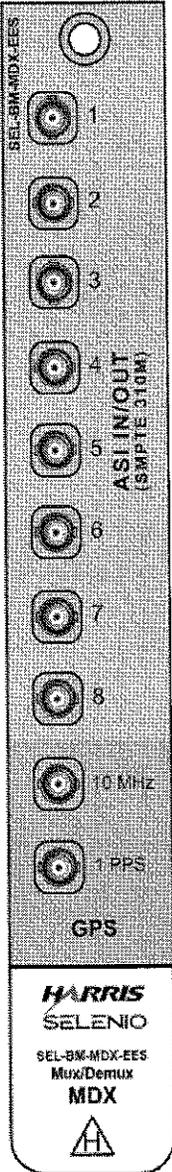
Transport Stream Multiplexer/Demultiplexer

SELENIO MEDIA CONVERGENCE PLATFORM // APPLICATION MODULES

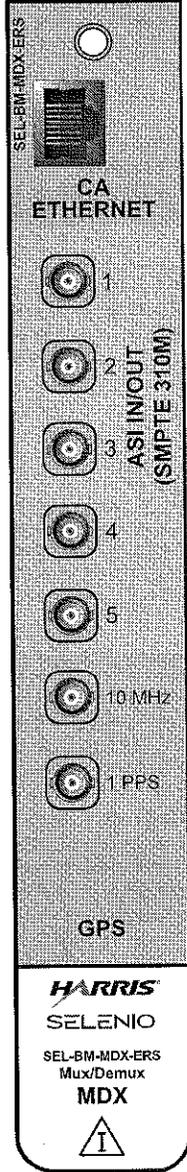
IMAGES/DIAGRAMS

Back Modules

Electrical to Electrical (EES)



Electrical to RJ-45 (ERS)

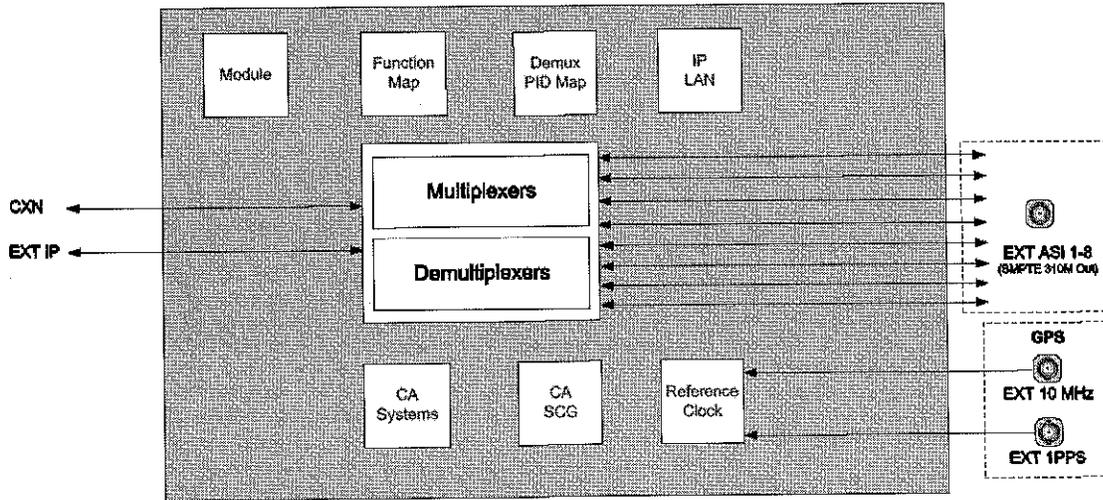


SEL-MDX1

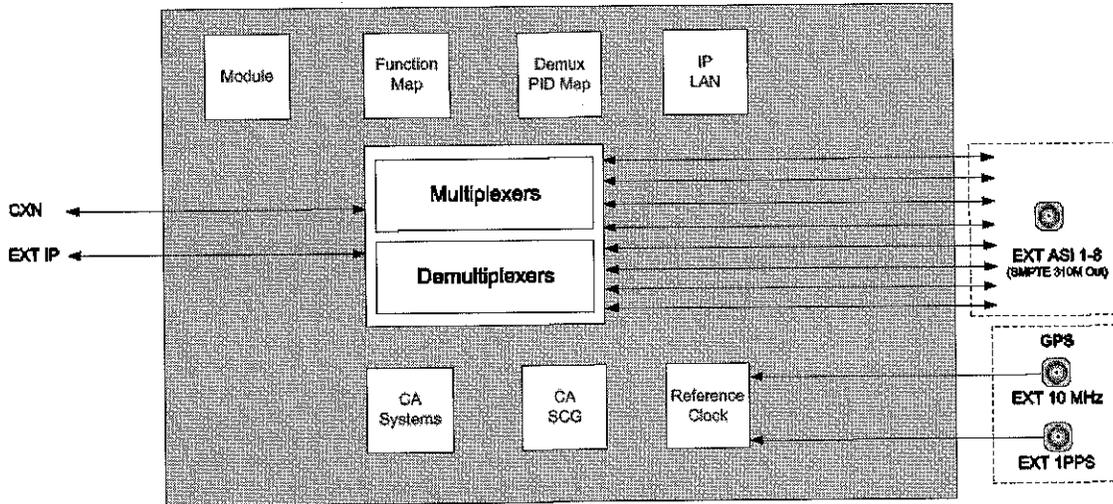
Transport Stream Multiplexer/Demultiplexer

Block Diagrams

Electrical to Electrical (EES)



Electrical to RJ-45 (ERS)



SEL-MDX1

Transport Stream Multiplexer/Demultiplexer

SPECIFICATIONS

Specifications are subject to change without notice.

ASI Input

Number of Inputs	up to 8
Standard	EN 50083-9
Connector	HD-BNC
Data Rate	0 to 210 Mb/s
Minimum Sensitivity	200 mV
Maximum Input Voltage	88 mV pk-pk
Minimum Discrete Connector	
Return Loss	-15 dB (0.3 MHz to 1 GHz)

ASI Outputs

Number of Outputs	up to 8
Standard	EN 50083-9
Connector	HD-BNC
Data Rate	0 to 210 Mb/s
Output Voltage	800 mV \pm 10% pk-pk
Clock Rate	270 MHz \pm 100 ppm
Deterministic Jitter	10% pk-pk
Random Jitter	8% pk-pk
Maximum Rise and Fall Time	1.2 ns (20% to 80%)

310M Input

Connector	HD-BNC
Load	5 ohms resistive
Peak-to-Peak Voltage	80 mV to 200 mV pk-pk
Rate	9.392658 MHz \pm 100 ppm
Format	I-phase-mark coding
Applicable Standards	SMPTE 310M

310M Output

Connector	HD-BNC
Peak-to-Peak Voltage	0 mV \pm 10%
Rate	9.392658 MHz \pm 2.8 ppm
Format	I-phase-mark coding
Applicable Standards	SMPTE 310M

10 MHz Reference

Connector	HD-BNC
Waveform	Sinusoidal 7 dBm nominal
Termination	50 ohms

1 PPS Reference

Connector	HD-BNC
Waveform	10 μ S TTL pulse
Termination	>10K ohms

Electrical

Power Consumption	40 W maximum
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ORDERING INFORMATION

SEL-MDX1-EES	MPEG-2 transport stream multiplexer/demultiplexer with dual input or output ports dependent on software model type (must select one) options, can be configured for SMPTE 310 or DVB-ASI on front module, includes single back module with HD-BNC connectors for 8 ASI input/output ports and 10 MHz and 1 PPS inputs
SEL-MDX1-ERS	MPEG-2 transport stream multiplexer/demultiplexer with dual input or output ports dependent on software model type (must select one) options, can be configured for SMPTE 310 or DVB-ASI on front module, includes single back module with one RJ45 data (video IP) port and HD-BNC connectors for 5 ASI input/output ports and 10 MHz and 1 PPS inputs

Multiplexer/Demultiplexer Model Types

SEL-SK-MX-MPEG	Software-keyed option for basic multiplexer/demultiplexer configuration
SEL-SK-MX-ATSC	Software-keyed option for ATSC multiplexer/demultiplexer table configuration
SEL-SK-MX-DVB	Software-keyed option for DVB multiplexer/demultiplexer table configuration
SEL-SK-MX-ENCAP	Software-keyed option for tunnel encapsulation (no multiplexing) configuration

Multiplexer/Demultiplexer Options

SELOPT-SK-MX-4CH	Software-keyed option to select 4 in/out channels (adds 2 channels)
SELOPT-SK-MX-8CH	Software-keyed option to select 8 in/out channels (adds 6 channels)
SELOPT-SK-MX-BISS	Software-keyed option for BISS encryption
SELOPT-SK-MX-SCR	Software-keyed option for BISS and Simulcrypt single-channel encryption

Multiplexer/Demultiplexer Front module only

SEL-FM-MDX1	Multiplexer/demultiplexer front module only
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Multiplexer/Demultiplexer Back Modules

SEL-BM-MDX-EES	Single back module for MDX multiplexer/demultiplexer with HD-BNC connectors for 8 ASI input/output ports and 10 MHz and 1 PPS inputs
SEL-BM-MDX-ERS	Single back module for MDX multiplexer/demultiplexer with one RJ-45 data (video IP) port and HD-BNC connectors for 5 ASI input/output ports and 10 MHz and 1 PPS inputs