



ROCK ISLAND
ILLINOIS

MEMORANDUM
INFORMATION TECHNOLOGY DEPARTMENT

TO: Thomas Thomas, City Manager

Number: 13-010

SUBJECT: Chambers audio system and public access channel

Date: 8/22/2012

Included in the fiscal year 12/13 budget is funding to address deficiencies in the council chambers audio system and the public access channel (channel 9). The Information Technology Department conducted a request for proposals (RFP) for the purposes of replacement of the aged systems.

Background

Several concerns have been raised regarding the audio in council chambers. The existing audio system has been in service many years and is malfunctioning. For this reason replacement alternatives have been evaluated. Additionally the computer based equipment used to record the Monday night council meeting and manage the automated playback of preprogrammed content on channel 9 has been in service many years, is insufficient to handle extended content, and is malfunctioning.

Electronic Communications Systems (ECS), Inc. of Davenport, IA has provided a proposal that offers value to the City of Rock Island by replacing the audio system and content server. Attached for your review is a copy of the proposal. The legacy “worn” microphones will be replaced with standard “gooseneck” style tabletop microphones and the audio output will be set to optimum performance. And, noticeable improvements to the delivery of preprogrammed content will be observed on channel 9 once the proposed content server system is in place.

Recommendation: The Information Technology Department recommends that the City Council approve the purchase and payment of the audio system and content server from Electronic Communications Systems (ECS), Inc. of Davenport, IA for a total not to exceed of \$29,200.00 and authorize the City Manager to the sign the contract documents.

Vendor: V00599 – Electronic Communications Systems (ECS)

Payment Amount: \$29,200.00

Account Chargeable:

Fund: 101 General Fund

Division/Cost Center: 256081 Information Technology

Object Class: 56405 Computer Software

Project Number: 6144000 PA Channel

Requisition Number: 003456

Submitted by: Timothy Bain, Interim Information Technology Director

APPROVED: Thomas Thomas, City Manager

ECS, INC.

ELECTRONIC COMMUNICATION SYSTEMS

5665 Tremont Avenue
Davenport, Iowa 52807

(563) 322-1525 Main Phone
(563) 322-5920 Fax

City of Rock Island

1528 3rd Ave.

Rock Island, IL

Rate Proposal

Council Chambers – Audio System & Content Server Installation & Services

Section 1 – Audio System (Appendix A)

Audio System Equipment Purchase = \$ 9586.06

Audio System Installation = \$ 4100.00

Proposed Price Total = \$ 13986.06 *Not To Exceed* = \$ 14000.00

Annual Hardware Maintenance

Year 1 & 2 = \$ **Included**

Year 3, 4 & 5 = \$ **300 Per Year**

Section 2 – Content Video Server (Appendix B)

Content Server Equipment Purchase = \$ 12089.76 Content Server System Installation = \$ 1965.00

Proposed Price Total = \$ 14054.76 *Not To Exceed* = \$ 15200.00

Annual Hardware Maintenance

Year 1 & 2 = \$ **Included**

Year 3, 4 & 5 = \$ **400 Per Year**

Section 1 – Audio System (Appendix A)

The BiAmp Nexia NC is an intelligent Digital Signal Processing (DSP) unit that allows for the integration of multiple microphone / line signal points into an audio or video system. The unit provides all the equalization, compression, gating, limiting, and gain structure alignment required to provide the City of Rock Island's Council Chambers with the utmost perfection in sound intelligibility. Spoken word can be disrupted by so many various factors that are normally uncontrollable, but surely unwanted. This unit provides proficient auto-mixing, which in turn automatically adjusts microphone gain structure when necessary. This adjustment is a minimal concentration towards the microphone input so as not to abruptly cause the system to be uncontrollable or unusable. The BiAmp Nexia NC has no outside controls, but will be able to be adjusted, when needed, by authorized personnel, via a custom web interface, that can be accessed from an authorized, existing pc. This design will allow for nothing short of a 'set it and leave it' point and will provide incredible reliability, ease of use and sonic sound allotment, even with minimal, if any, technical staff present.

The existing Wireless System and Guest/User Audio Input will be included and integrated into the newly designed audio system.

The system will have a remote power-sequencing switch located by the existing 'Mediacom' video switching station. The switch is not required for direct power control and the system can be turned on directly from the audio rack, which will be located in the existing audio rack location, within a newly designed equipment rack. The rack will continue to be wall-mounted and will contain a lockable Plexiglas door. Proper power conditioning and venting has been taken into consideration and provisions have been included.

A clean 15a duplex power source is requested at the audio system rack location. If a newly installed duplex outlet will be installed (via the City of Rock Island), please locate the outlet directly behind the middle of the rack mounting location. This provides for a *safer* and *cleaner* installation.

The system has provided, per request, 11x desktop gooseneck condenser microphones. Said microphones can be programmed to either 'push-to-talk' or 'on/off'. This is an individual programming choice per microphone.

An identical microphone will be mounted on the existing lectern. Said microphone will not have a programmable base and will be left in the 'off' position unless the Mayor pushes custom on/off switch, located beside their chair position.

The audio system will incorporate all existing line inputs, including, but not limited to the guest input points.

Outputs will be controllably sent to the 'Mediacom' video switching station, the live recording/streaming, via Leightronix, to the sound reinforcement system and will also have other outputs available.

All BiAmp programming will be performed via a Certified BiAmp Nexia Programmer.

Section 2 – Content Video Server (Appendix B)

The Leightronix UltraNexus provides extreme quality recordings for digital media files. Said recordings are internally prepped re-broadcast and Internet streaming. Fully automatic / scheduled video playback allows for simultaneous video playback to occur over 2x individual, digital output channels. A maximum of 24x hours of continuous record time allowed over a single record session. Continuous playback occurs even during times of recording other sources. The UltraNexus takes MPEG playback to the highest level of quality, usability, timing, scheduled broadcast and re-recording.

The UltraNexus allows for text overlaying. This does *not* include live text overlay (ie. adding text to a live stream). Custom backgrounds, text, trim, etc. can be added to any 'slide' or graphic build.

All sound recorded and on broadcast relies on digital formatting. Therefore, all analog or digital runs through an internal analog to digital converter (A/D). The result forms a wonderfully usable digital audio output.

The UltraNexus can record from any live or static source (ie. dvd, live camera).

Digital storage is provided via 2x 1-Terrabyte Hard Drives. Said drives are rack-mounted and have accurate real-time availability for all video content.

The access for the Leightronix system is based up two methods. We recommend the web-interface over the included application. All access, via the web-interface, allows for any and all functionality, scheduling, editing and basic creation of content. The PC used for such access will be provided via the City of Rock Island.

All video recorded will be done so pre 'Mediacom' broadcast. Distributed video and audio signals provide each with an equal, individual signal flow.

ECS, Inc has been providing audio and video system integrations for over 40 years and will continue to provide the most technological advanced systems. The staff are highly qualified, certified and carry years and years of experience in any and all installation situations. Our main office is located directly in Davenport, IA, so any and all service calls, if needed, are only a few miles away.

Incorporating audio and video systems, broadcast or not, into one another becomes a task involving proper signal flow and the integration of HDCP compliance. ECS, Inc technicians and programmers are fully trained and thoroughly experienced at providing such installations.

All services specified, for either Section 1 – Audio System or Section 2 – Video Content Server, can and will be provided with the recommended equipment, installation, programming, services and training.

Complete documentation on usability, equipment manuals, signal flow diagrams and video content server tips will be provided for use. All documentation on system controls will be designated as a top priority within the custom user manual provided.

After all installations are complete and training has occurred, a scheduled follow-up, approximately 10x weeks out, will assist with any and all questions or concerns. ECS, Inc and Leightronix Technical Support are always available to assist with questions that may arise.

Thank you.

Adam O'Rourke, Project Engineer

Date: _____

Unmatched Flexibility. Unbending Performance.

MX412/MX418 Standard Gooseneck Microphones

Microflex Standard Gooseneck microphones provide the added length and flexibility needed for speakers in environments like lecterns, pulpits, and courtrooms. Available in four models with a variety of heights and mounting styles to choose from, Microflex Gooseneck microphones feature high sensitivity and balanced, transformerless output for maximum resistance to electromagnetic hum and RF interference, even over long cable runs.

- Available in 12 inch (30.5 cm) and 18 inch (45.7 cm) lengths
- Interchangeable cartridges provide the right polar pattern for every application
- Locking flange mount for permanently securing microphone to surfaces
- Snap-fit foam windscreen
- Shock mount provides over 20 dB isolation from surface vibration noise
- Models available with attached preamp, in-line preamp, or desktop base

Available Models

MX412 C/S/N 12 inch (30.5 cm), Attached Preamp
MX412S C/S/N 12 inch (30.5 cm), Attached Preamp, Mute Switch
MX412SE C/S/N 12 inch (30.5 cm), In-Line Preamp, 10 foot (3.0 m) Side-Exit Cable
MX412D C/S/N 12 inch (30.5 cm), Desktop Base with 10 foot (3.0 m) Cable
MX418 C/S/N 18 inch (45.7 cm), Attached Preamp
MX418S C/S/N 18 inch (45.7 cm), Attached Preamp, Mute Switch
MX418SE C/S/N 18 inch (45.7 cm), In-Line Preamp, 10 foot (3.0 m) Side-Exit Cable
MX418D C/S/N 18 inch (45.7 cm), Desktop Base with 10 foot (3.0 m) Cable

C = Cardioid, S = Supercardioid, N = No Cartridge

MX412S



MX418D

Technical Specifications Subject to change

	MICROFLEX Lavalier/Headset Microphones	MX200 Overhead Microphones	MX391/392/393 Boundary Microphones	MX395/396 Boundary Microphones	MX400 Gooseneck Microphones	MX690 Boundary Microphone
Type	Condenser (electret bias)	Condenser (electret bias)	Condenser (electret bias)	Condenser (electret bias)	Condenser (electret bias)	Condenser (electret bias)
Frequency Response	MX185/184/183: 50–17000 Hz MX150: 20–20000 Hz MX153: 20–20000 Hz	50–17000 Hz	50–17000 Hz	50–17000 Hz	50–17000 Hz	50–17000 Hz
Output Impedance	MX185/184/183: EIA rated at 150 Ω (170 Ω actual) MX150: 165.5 Ω MX153: N/A	180 Ω actual (EIA rated at 150 Ω)	EIA Rated at 150 Ω (180 Ω actual)	EIA Rated at 150 Ω (170 Ω actual)	EIA Rated at 150 (170 actual, MX405/410/415) (180 actual, MX412/418)	EIA Rated at 150 Ω (180 Ω actual)
Sensitivity (at 1 kHz, open circuit voltage)	MX183: -27.5 dB V/Pa (42.2 mV) MX184: -33.5 dB V/Pa (21.1 mV) MX185: -35.0 dB V/Pa (17.8 mV) MX150: -39.0 dB V/Pa MX153: -41.0 dB V/Pa All settings -12 dB at 0 gain 1 Pascal = 94 dB SPL	Cardioid: -35.0 dB V/Pa (17.8 mV) Supercardioid: -33.5 dB V/Pa (21.1 mV) Omnidirectional: -27.5 dB V/Pa (42.2 mV) All values -12 dB at 0 gain 1 Pascal = 94 dB SPL	MX391 Cardioid: -29.6 dB V/Pa (33.5 mV) MX391 Supercardioid: -28.3 dB V/Pa (38.5 mV) MX391 Omnidirectional: -21.5 dB V/Pa (81.4 mV) MX392/393 Cardioid: -27.5 dB V/Pa (42.2 mV) MX392/393 Supercardioid: -26.5 dB V/Pa (47.3 mV) MX392/393 Omnidirectional: -22.0 dB V/Pa (79.4 mV) 1 Pascal = 94 dB SPL	MX395 Cardioid: -34 dB V/Pa (20 mV) MX395 Omnidirectional: -29 dB V/Pa (35.5 mV) MX395 Bidirectional: -35 dB V/Pa (17.8 mV) MX396: -35 dB V/Pa (18 mV) 1 Pascal = 94 dB SPL	Cardioid: -35 dB V/Pa (17.8 mV) Supercardioid: -33.5 dB V/Pa (21.1 mV) Omnidirectional: -27.5 dB V/Pa (42.2 mV) 1 Pascal=94 dB SPL	-33 dB V/Pa (33 mV) 1 Pascal=94 dB SPL
Maximum SPL (1 kHz at 1% THD, 1 k load)	MX183: 132.8 dB MX184: 138.8 dB MX185: 140.3 dB MX150: 129.5 dB MX153: 107 dB All settings +6 dB at 0 gain	Cardioid: 124.2 dB Supercardioid: 122.7 dB Omnidirectional: 116.7 dB	Cardioid: 118.8 dB Supercardioid: 117.5 dB Omnidirectional: 110.7 dB	MX395 Cardioid: 120 dB MX395 Omnidirectional: 115 dB MX395 Bidirectional: 121 dB MX396: 122 dB	MX405/410/415: Cardioid with MX400SMP: 121.1 dB Cardioid with MX400DP: 122 dB Supercardioid: with MX400SMP: 119.7 dB Supercardioid: with MX400DP: 120.5 dB MX412/418: Cardioid: 124.2 dB Supercardioid: 122.7 dB Omnidirectional: 116.7 dB	118.8 dB <i>For complete specifications on the MX690 and MX890 wireless transmitters, please visit www.shure.com.</i>
Equivalent Output Noise (A-weighted)	MX183: 23.7 dB SPL MX184: 29.7 dB SPL MX185: 31.2 dB SPL MX150: 31.0 dB SPL MX153: 24.9 dB SPL	Cardioid: 28.0 dB SPL Supercardioid: 26.5 dB SPL Omnidirectional: 20.5 dB SPL	Cardioid: 22.6 dB SPL Supercardioid: 21.3 dB SPL Omnidirectional: 14.5 dB SPL	MX395 Cardioid: 29 dB SPL MX395 Omnidirectional: 23 dB SPL MX395 Bidirectional: 27 dB SPL MX396: 30 dB SPL	Cardioid: 28 dB SPL Supercardioid: 26.5 dB SPL Omnidirectional: 20.5 dB SPL	22.6 dB SPL
Signal-to-Noise Ratio (referenced at 94 dB SPL at 1 kHz)	MX183: 70.3 dB MX184: 64.3 dB MX185: 62.8 dB MX150: 57.5 dB MX153: 60.0 dB	Cardioid: 66.0 dB Supercardioid: 67.5 dB Omnidirectional: 73.5 dB	Cardioid: 71.4 dB Supercardioid: 72.7 dB Omnidirectional: 79.5 dB	MX395 Cardioid: 65 dB MX395 Omnidirectional: 72 dB MX395 Bidirectional: 67 dB MX396: 64 dB	Cardioid: 66 dB Supercardioid: 67.5 dB Omnidirectional: 73.5 dB	71.4 dB
Dynamic Range (1 k load at 1 kHz)	MX185/184/183: 109.1 dB MX150: 92.5 dB MX153: 73.0 dB 100 dB at 0 gain	96.2 dB (100 dB at 0 gain)	96.2 dB	MX395 Cardioid: 91 dB MX395 Omnidirectional: 92 dB MX395 Bidirectional: 95 dB MX396: 92 dB	MX405/410/415: Cardioid with MX400SMP: 93.1 dB Cardioid with MX400DP: 94 dB Supercardioid with MX400SMP: 93.2 dB Supercardioid with MX400DP: 94 dB MX412/418: 96.2 dB 100 dB at 0 gain	96.2 dB
Power Requirements	11–52 Vdc phantom, 2.0 mA or 9V battery 0.8mA	11 to 52 Vdc phantom, 2.0 mA	11–52 Vdc phantom, 2.0 mA	MX395: 11–52 Vdc phantom, 2.0 mA MX395-LED: 48–52 Vdc phantom, 8.0 mA MX396: MX396/C-DUAL: 48–52 Vdc phantom, 10.0 mA MX396/C-TRI: 48–52 Vdc phantom, 12.0 mA	MX405/410/415: 48–52 Vdc phantom, 8.0 mA MX412/418: 11–52 Vdc phantom, 8.0 mA	3V (2 AA alkaline or rechargeable batteries)



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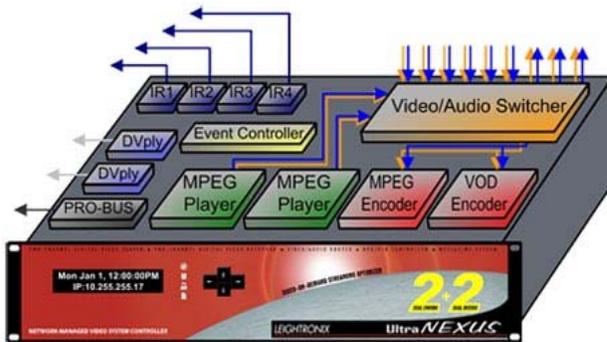
Ultra **NEXUS**™

The UltraNEXUS™ records high-quality digital media files for television rebroadcast while simultaneously creating files optimized for Internet video-on-demand streaming. Also included are two independent digital playback channels that can be scheduled for 100% automated display.

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- [Options](#)
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Integrated, Multi-Channel Digital Video Server

- Two MPEG Playback (Decode) Channels
- One Broadcast MPEG Record (Encode) Channel
- One Video-on-Demand Streaming Optimized Record (Encode) Channel
- Easily Increase Digital Playback and Record Channels through the [TOTAL SHARE™ Option](#)
- Extended Length Digital Recording—Record Continuously at High-Quality MPEG-2 Video/Audio Bit Rates for up to 24 Hours
- Simultaneous Operation of all Playback and Recording Channels
- MPEG File Transfer via Gigabit Speed Ethernet



Digital Video Slides

The UltraNEXUS can handle your video messaging needs without external hardware. Two video messaging channels accompany and enhance program playback. Common JPEG images ensure compatibility with third party graphic programs.



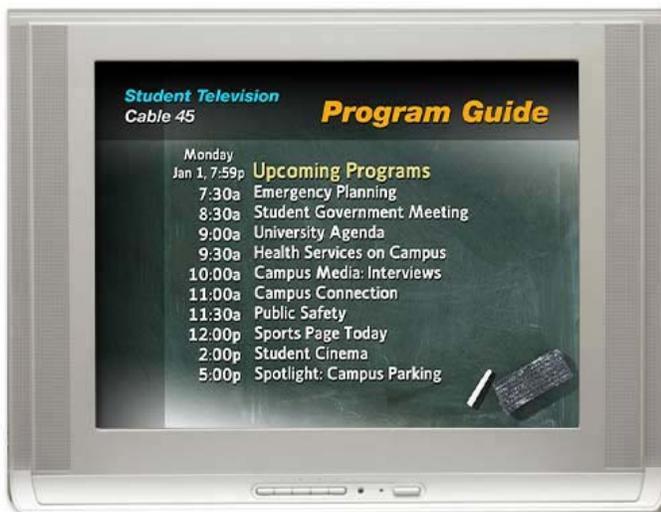
Graphic/Text Overlays

Display logos, bugs, and attention-getting messages as part of the normal playback schedule.



Onscreen Program Guide

The program guide can be scheduled to appear at specific times as an individual slide or within the normal rotation of one or more slide shows.



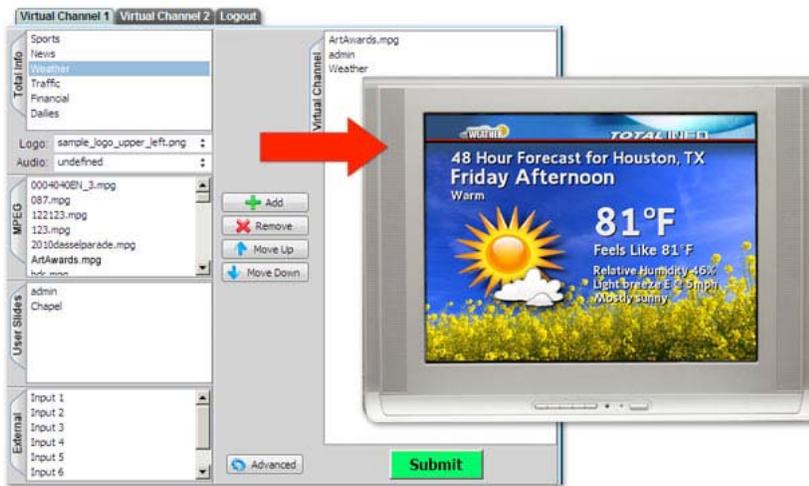
Emergency Messaging

Authorized users can log into WebNEXUS and easily create and activate emergency messages.



Virtual Channels

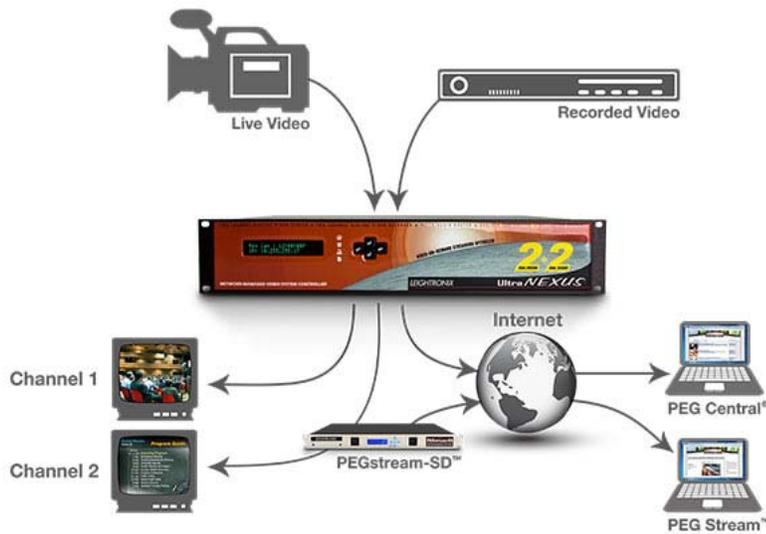
For the ultimate in ease and convenience, use the dual Virtual Channels to display slide shows, MPEG clips, and even external sources between programs. Add dynamic video content with optional TOTAL INFO® news and entertainment.



Broadcasting and Streaming

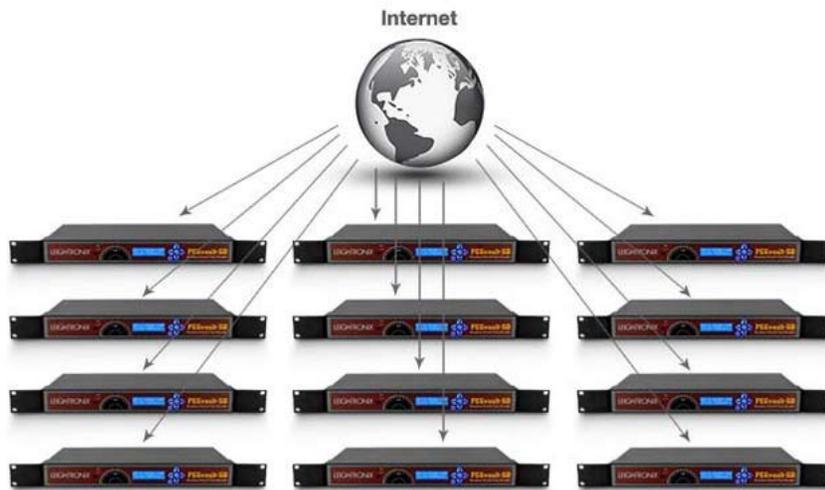
In addition to broadcasting, the UltraNEXUS has a built-in workflow for video-on-demand streaming. The UltraNEXUS dual digital encoders simultaneously create a high quality digital media file for television broadcasting as well as a file optimized for video-on-demand (VOD) streaming. Once the files are recorded, the UltraNEXUS will even automatically transfer the VOD optimized file to a LEIGHTRONIX Web hosting and video-on-demand streaming service such as PEG Central.

The UltraNEXUS also easily accommodates live streaming so Internet viewers can watch your events while they are happening. Simply connect the PEGstream-SD live streaming media encoder to an output on your UltraNEXUS. The encoder captures and delivers the stream to the PEG Stream live streaming service, making the event immediately available to viewers without putting any strain on your local network.



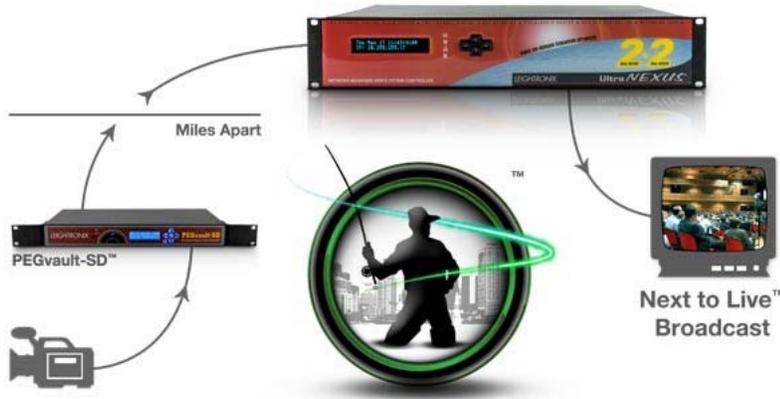
Remote Recording Control

Included ePRO-BUS™ control allows the UltraNEXUS to send scheduled or immediate record commands to up to 16 [PEGvault-SD™ broadcast digital video encoders](#) or [LABvault-SD™ digital player/recorders](#). When the PEGvault-SDs or LABvault-SDs finish recording, they automatically transfer the digital media files back to the UltraNEXUS.



Remote Broadcasting

Cover a remote, live event without a direct video feed by letting the PEGvault-SD broadcast digital video encoder and the Internet deliver it for you. An integral part of [PEGcasting™](#), the PEGvault-SD pre-send and auto-play features allow programs remotely recorded to be automatically sent to and broadcast at an UltraNEXUS site within minutes after a recording starts.



Dynamic Video Content

The [TOTAL INFO®](#) dynamic video content option brings the latest news, sports, weather, and more to NEXUS-powered local television channels. TOTAL INFO is perfect for complementing regularly scheduled programming or providing the primary content for information and entertainment channels. UltraNEXUS and UltraNEXUS-SDI users can also take advantage of Zoned TOTAL INFO and simultaneously display TOTAL INFO weather and a rotating display of user-selected TOTAL INFO categories side by side with digital video programming.



Switching

The UltraNEXUS is equipped with an internal 8x4 video/audio routing switcher that features true matrix routing and loss-of-video detection. Need more inputs and outputs? The UltraNEXUS is capable of controlling many popular video/audio routing switchers with a maximum of 250x250.



Device Control

- [DVD and VCR Control](#)

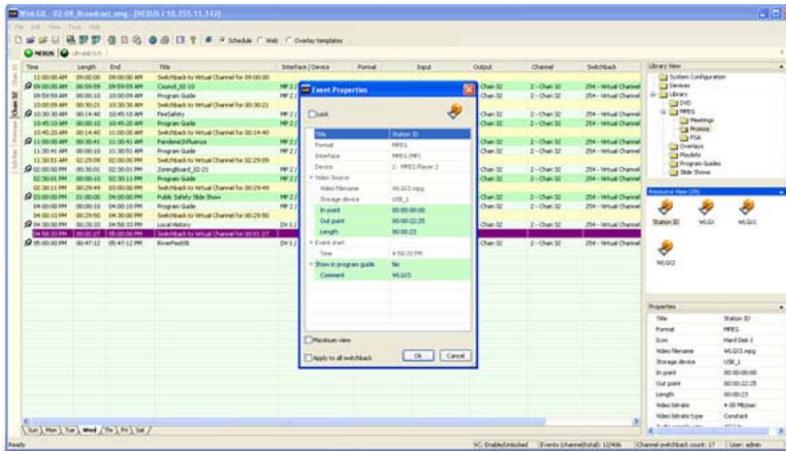


- **PRO-BUS™** Machine Control for up to 16 DVD Players/Recorders and VCRs
- Four Integrated Infrared Device Ports for Control of DVD Players/Recorders and VCRs
- Two **DVply™** Control Ports for Advanced Control of DVD Players with Title:Chapter Access
- Optional ePRO-BUS™ Remote Control for up to 16 [PEGvault-SD Broadcast Digital Video Encoders](#) or [LABvault-SD Player/Recorders](#)



WinLGX

Included with the UltraNEXUS is the WinLGX™ management and control software. WinLGX provides all of the tools necessary for local and remote system control of LEIGHTRONIX digital video servers and system controllers via TCP/IP network. System configuration, immediate device control, drag and drop scheduling with error checking, and system status are all easily managed through the software's powerful yet easy-to-use interface.



WebNEXUS

WebNEXUS™ is a built-in Web server within the UltraNEXUS providing system status and control using a standard Web browser. WebNEXUS provides easy access for the following:

- Monitor System Status
- Manage Digital Media Destinations and Transfers

- Create and Contribute Video Slides with the Professional Graphics Tools



- in the Advanced Slide Editor
- Emergency Messaging
- Online Program Guide
- Virtual Channels

WebNEXUS Mobile

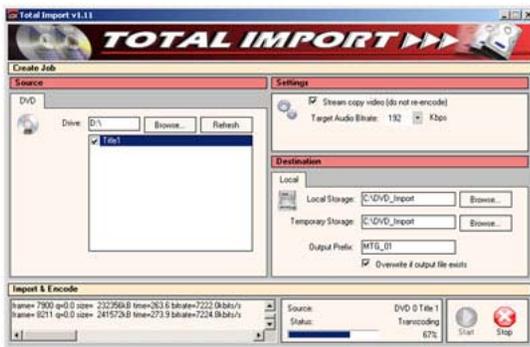
Control the UltraNEXUS from the palm of your hand with WebNEXUS Mobile, the browser-based interface designed exclusively for mobile devices.

- Check System and Switcher Statuses
- Send Switch Commands
- Monitor Activity of MPEG Playback and Record
- Play MPEG Video Files
- Record MPEG Files
- Supports Apple iOS—Works with iPhone and Select iPod Touch Models



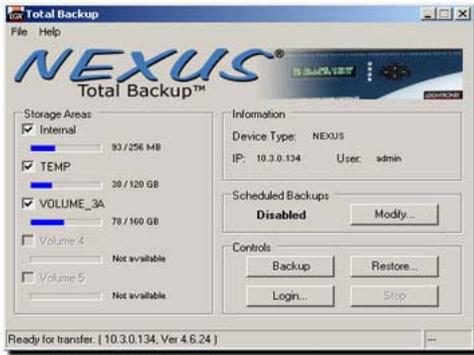
TOTAL IMPORT

The TOTAL IMPORT™ software utility converts non-encrypted DVD titles into industry standard MPEG-2 video/audio files for import and playback on UltraNEXUS video server systems. TOTAL IMPORT is included free of charge with the UltraNEXUS.



Total Backup

Schedule automatic system data and media backups at regular intervals using the included UltraNEXUS Total Backup™ application. System backup is performed as a low-priority background task and does not impact on-air operations.



- Integrated, Multi-Channel Digital Video Server >
- Digital Video Messaging
 - Digital Video Slides >
 - Graphic/Text Overlays >
 - Onscreen Program Guide >
 - Emergency Messaging >
 - Virtual Channels >
- Broadcasting and Streaming >
- Remote Recording Control >
- Remote Broadcasting >
- Dynamic Video Content >
- Switching >
- Device Control >
- User Interfaces
 - WinLGX >
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 - Total Backup >

-
- [5 Year Warranty](#)
 - [Lifetime Support](#)

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