NAV Pro AV over IP

POWERFUL · SCALABLE · SECURE

NAV PRO AVoIP

PURE3 VECTOR 4K SCALING 18 Gbps 4K/60 4:4:4

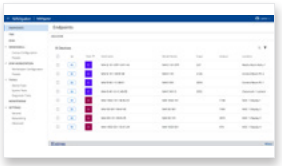
Lossless Video · Ultra-Low Latency · Low Bit Rates

- High quality distribution and switching of video, audio, USB, and Ethernet over standard IP networks
- HDMI 2.0 with 4K/60 @ 4:4:4 chroma sampling
- Ultra-low latency with lossless video encoding using the patented Extron PURE3® codec
- PURE3 Intelligent Selective Streaming achieves exceptionally low bit rates with low motion content while maintaining lossless performance
- Fully integrated with the powerful and easy to use Extron Pro Series control system
- AES67 audio over IP standard provides interoperability with Extron and third party audio DSP processors
- Enhanced security with Secure Real Time Transport Protocol
- FIPS 140-2 certified
- 802.1X port-based Network Access Control for secure device authentication

Extron

NAV Series

The NAV® Series is the only no-compromise Pro AV over IP solution for the distribution and switching of ultra-low latency, high-quality video, audio, USB and Ethernet signals over standard IP networks at low bit rates. It delivers revolutionary performance with real-time, lossless video over IP at resolutions up to 4K @ 60 Hz with 4:4:4 chroma sampling. The NAV Series offers both 1 and 10 Gigabit Ethernet encoders and scaling decoders with full interoperability across both systems. NAV can be deployed as a high-performance, IP-based video, audio, and USB matrix, combining the flexibility and scalability of a Pro AV over IP system with the integration friendly switching features found in traditional Extron matrix switchers.



The NAVigator System Manager has an intuitive browser interface that makes the NAV System easy to setup, easy to use, and easy to maintain. NAV endpoints can be auto-discovered and configured in minutes and the NAVigator can apply updates to all endpoints simultaneously with just a few mouse clicks. The NAV Series is also fully integrated with the Extron Pro Series Control System, which enables simple and reliable control from Extron Touchpanels or keypads.

PURE3® is a groundbreakingly powerful, purpose-built codec designed specifically for Pro AV. By leveraging our expertise in video transmission and our knowledge of the Pro AV market and applications, we created PURE3 from the ground up to address the unique needs of the professional AV industry. PURE3 delivers lossless video at 4K/60 with ultra-low latency and efficient bit rates.

Vector™ 4K Scaling Technology is the latest generation of Extron scaling engines, specifically engineered for critical-quality 4K signal processing. The Vector 4K scaling engine delivers the power and precision required to manage the high pixel counts of today's 4K displays and content. Vector 4K Scaling enables NAV seamless switching and WindoWall® videowall capabilities.

NAV Pro AV over IP enables dynamic designs that are flexible, scalable, and extensible. From the boardroom to the classroom, NAV Pro AV over IP distributes and switches lossless video, audio, USB, and Ethernet over standard IP networks. Utilizing the Extron patented PURE3 codec, the NAV system delivers groundbreaking performance with real-time, lossless video at resolutions up to 4K @ 60 Hz with 4:4:4 chroma sampling. Integration with Extron Pro Series Control Systems deliver powerful solutions that are easy to implement, easy to use, and easy to maintain.

PURE3 Codec

Most codecs make compromises in either image quality, bandwidth requirements, or latency. The no-compromise Extron PURE3® Codec with Intelligent Selective Streaming, offers the best of all three with its groundbreaking simultaneous delivery of high quality, low bit rate, and ultra-low latency.

NAV systems utilize PURE3, the patented, highly efficient wavelet-based encoding technology that exceeds the performance characteristics found in standards-based compression systems. With virtually no latency, encoded video signals are processed with 4:4:4 color quantization, while maintaining original source quality and native resolution.

The PURE3 codec exclusive Intelligent Selective Streaming technology leverages periods of low motion in streamed content to achieve efficient bit rates while maintaining lossless performance. This significantly reduces bandwidth requirements, bringing increased scalability to PURE3 deployments.

The PURE3 codec also features advanced error concealment, providing high immunity to network errors such as bit errors, jitter, and out-of-order or dropped data packets. PURE3 error concealment provides robust picture delivery without the increased latency or bandwidth typically introduced by forward error correction – FEC systems.

Ultra-Low Latency

Lossless Video

4: 4: 4 Chroma Sampling

Efficient Bitrates

Error Concealment

Easy Setup and Configuration

The NAVigator and NAV endpoints feature a user-friendly, browser interface for easy access and configuration from a standard browser. The NAV system also supports configuration from Extron PCS – Product Configuration Software.

System Monitoring and Control

The NAVigator System Manager turns any NAV system into a powerful and flexible IP-based matrix solution. The NAVigator is a secure, purpose-built appliance with an intuitive browser interface for centralized configuration, management, and control of NAV Systems. It facilitates easy setup, configuration, and switching, and includes extensive features for monitoring, diagnostics, and troubleshooting. NAVigator also facilitates bulk firmware upgrades, simultaneous configuration, backup, and restoration of multiple units from a single browser. Finally, the NAVigator integrates with the Extron Pro Series Control System for powerful, flexible, and secure extended control.

Robust Security

NAV endpoints support 802.1X port-based Network Access Control. When applied, 802.1X authentication requires that all devices are approved before network access is granted. Additionally, the Secure Real Time Transport Protocol - SRTP encrypts video, audio, and data streams with AES encryption. When the NAVigator System Manager is utilized, all communication between the NAVigator and NAV endpoints is encrypted with SSH – Secure Shell protocol. Also, NAV endpoints with an optical Ethernet interface are inherently secure and immune to electromagnetic and radio frequency interference, making them ideal for highly sensitive, secure environments. To further enhance security, NAV endpoints are Secure Platform Devices. Extron Pro Series Control Systems and NAV endpoints encrypt all commands between control processors and endpoints. These features and more have earned the NAV Series FIPS 140-2 certification enabling deployment of the NAV Pro AVoIP Series in the most secure information and network infrastructures.

Scalability

The flexible nature of IP networks ensures NAV systems are highly scalable and easily expandable to grow with any organization. With the highly efficient PURE3 codec, NAV delivers unrivaled video quality at low bitrates, which means it does not need the extreme uplink bandwidth required by other AV over IP systems when connecting multiple switches. All these features make NAV the most scalable system in the market.

FEATURES

Stream AV signals over IP networks
Standard IP streaming supports flexible system design and efficient transmission to many receivers over large distances and to any location

Supports HDMI 2.0 at video resolutions up to 4K/60 @ 4:4:4 chroma sampling
HDMI up to 4K @ 60Hz (4096 x 2160) with full 4:4:4 chroma sampling ensures accurate reproduction of source images with no loss of detail.

PURE3® Codec
Extron's patented wavelet-based compression technology delivers lossless image quality with ultra low-latency at efficient bit rates. With high immunity to network errors and built-in error concealment, PURE3 facilitates reliable, real-time delivery of lossless, ultra-low latency video over standard IP networks.

PURE3 Intelligent Selective Streaming
Achieves exceptionally low bit rates with low motion content while maintaining lossless performance.

Full 1 and 10 Gig interoperability
NAV systems feature seamless, full interoperability between 1 and 10 Gbps endpoints for flexible system design across the entire enterprise.

Fast reliable switching
Multiple encoders and decoders can be deployed together to create an IP-based video, audio, and USB matrix, combining the flexibility of an IP-based system with the switching performance and integration-friendly features found in conventional Extron matrix switchers.

NAVigator System Manager
Secure, centralized configuration, management, and control of NAV systems. NAVigator offers bulk setup, configuration, and upgrade as well as easy switching, and extensive features for monitoring, diagnostics, and troubleshooting.

Intuitive browser interface
Both NAVigator and NAV endpoints provide an intuitive, user-friendly browser interface that simplifies device configuration, setup, and maintenance.

SmartGlide™ KVM Workstation
Up to 8 displays managed per workstation in configurable format with a single keyboard and mouse. SmartGlide KVM Switching automatically changes focus and control as the mouse glides to the next display. SmartGlide KVM Focus optionally highlights the active display.

USB 2.0 extension and switching
Built-in USB Type-C® port facilitates extension of peripheral USB 2.0 devices over the same interface as video and audio. Ideal for KVM applications or remote connectivity for USB cameras or storage devices.

HDCP 2.3 compliant
Ensures display of content-protected media and interoperability with other HDCP-compliant devices.

Power over Ethernet
PoE+ NAV encoders and decoders may be powered over the Ethernet cable, eliminating the need for bulky local power supplies.

Breakaway enables independent video, audio, and USB switching
Provides capability to break away an audio or USB signal from its corresponding video signal.

AES67 audio support
The AES67 audio over IP standard provides interoperability with Extron and third party DSP audio processors.

Adjustable bit rate
Select bit rates while maintaining image quality for more flexible network configurations that easily adapts to application requirements.

Error concealment
Delivers high immunity to network errors, ensuring reliable transmission of high quality video with the ability to conceal errors even during incidents of heavy packet loss.

HDMI loop-through local display
HDMI 2.0 output provides signal for a local display, an AV system, or a hardware codec, enabling monitoring or sharing of content.

WindoWall®
Up to 64 displays may participate in a NAV videowall using the Extron WindoWall System. Enabling a mix of full screen and image magnification across multiple displays, NAVigator presets provide a quick and easy way to manipulate the videowall canvas among different image arrangements.

Advanced Extron Vector™ 4K scaling technology
Vector 4K scaling ensures critical-quality 4K imagery, with best in class image upscaling and downscaling, enhanced color accuracy, and picture detail.

EDID Minder® automatically manages EDID communication between connected devices
Ensures that all sources power up properly and reliably output content for display.

Key Minder® continuously verifies HDCP compliance for quick, reliable switching
Key Minder authenticates and maintains continuous HDCP encryption between input and output devices to ensure quick and reliable switching in professional AV environments, enabling simultaneous distribution of a single source signal to one or more displays.

HDCP Visual Confirmation
When HDCP-encrypted content is transmitted to a non-HDCP compliant display, a full-screen green signal is sent to the display for immediate visual confirmation that protected content cannot be viewed on that display.

Pro Series control ports
Designed to integrate directly with Extron Pro Series control systems for secure, encrypted RS-232 and IR control of external devices without the need for additional control processors.

Secure Platform Device
Extron Pro Series control systems offer flexible system management and matrix switching control to Secure Platform Devices and encrypts all commands from the control processor to endpoint.

ENCODER

Convenient access for configuration
Mini USB port provides easy access for configuration changes and updates

Monitor NAV signals
Status LEDs enable easy verification of HDCP encryption, video, audio, and USB stream presence

Check active audio output
Audio status LEDs indicate the presence of active audio

Confirm USB status
USB LEDs show the USB mode and status

Monitor network connectivity
LAN LEDs show the status of the NAV streaming link and the Ethernet expansion link

Quickly identify unit on the network
ID LED and button helps to quickly identify units on the network

NAV E 501

Video resolutions up to 4K/60 @ 4:4:4
HDMI input and loop-through supports 4K/60 with 4:4:4 chroma sampling

Separate analog audio input
5-pole captive screw provides balanced or unbalanced analog audio input

Control remote devices
Pro Series control port enables remote RS-232 and IR remote port access.

USB connectivity for KVM and other applications
USB-C port for USB 2.0 connection of peripheral devices

Stream over standard IP networks
Industry standard copper Gigabit Ethernet with PoE+. Models available with 1 or 10 Gig single or multimode fiber

Expand Ethernet connectivity to remote locations
RJ-45 1 Gigabit Ethernet expansion port enables connectivity to remote LAN devices

DECODER

Convenient access for configuration
Mini USB port provides easy access for configuration changes and updates

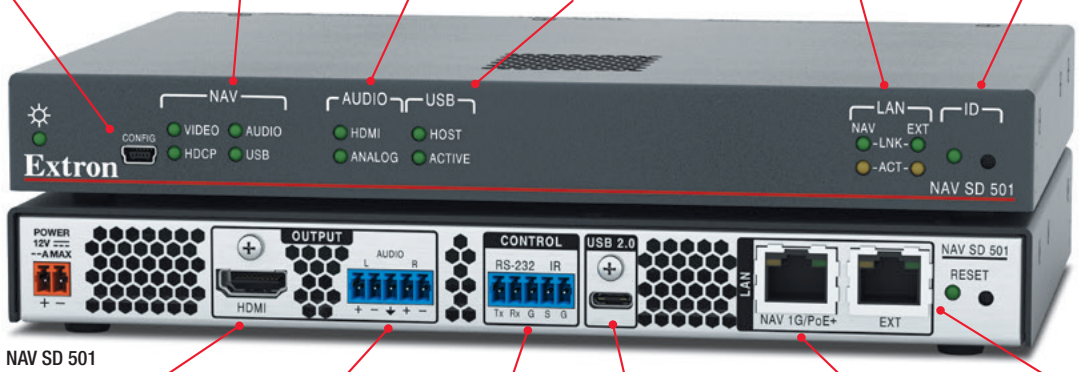
Monitor NAV signals
Status LEDs enable easy verification of HDCP encryption, video, audio, and USB stream presence

Check active audio output
Audio status LEDs indicate the presence of active audio

Confirm USB status
USB LEDs show the USB mode and status

Monitor network connectivity
LAN LEDs show the status of the NAV streaming link and the Ethernet expansion link

Quickly identify unit on the network
ID LED and button helps to quickly identify units on the network



NAV SD 501

Scale and output video
HDMI 2.0 output with 4K/60 and 4:4:4 chroma sampling support

Extract analog audio
5-pole captive screw provides balanced or unbalanced analog audio output

Control remote devices
Pro Series control port enables remote RS-232 and IR SPD port access

USB connectivity for KVM and other applications
USB-C port for USB 2.0 connection of peripheral devices

Stream over standard IP networks
Industry standard copper Gigabit Ethernet with PoE+. Models available with 1 or 10 Gig single or multimode fiber

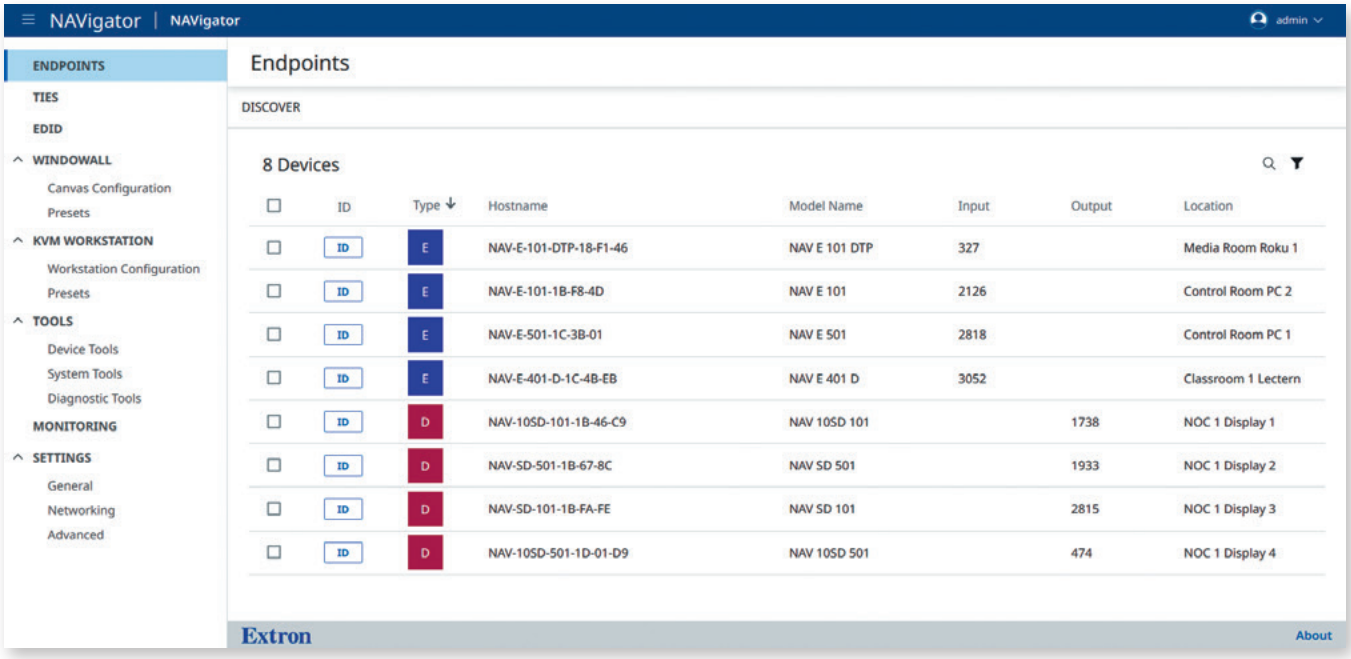
Expand Ethernet connectivity to remote locations
RJ-45 Gigabit Ethernet expansion port enables connectivity to remote LAN devices

NAVIGATOR

The NAVigator delivers simple configuration, management, monitoring, and troubleshooting tools that are key to a successful Pro AV over IP deployment. Manual configuration of every endpoint can be time consuming and troubleshooting can be a labor intensive without the right tools. The NAVigator System Manager was created specifically for the Pro AV integrator, with intuitive configuration, management, monitoring, and troubleshooting tools that make your NAV system easy to setup, easy to manage, and easy to maintain.

The NAVigator features a simple browser interface for centralized configuration, management and control. Integrators familiar with traditional Extron matrix switchers will find it easy to implement Pro AV over IP with the NAVigator, as it shares many of the same terminologies. All NAV communication is encrypted and secure, and access can be protected further with username and password authentication. The NAVigator features two LAN interfaces that allow the option to isolate management from the AV LAN, with easily accessible IP address settings along with a variety of configuration and backup options.

The NAVigator greatly enhances efficiency with bulk management tools that enable firmware upgrades, backup, or restoration of one or all the NAV endpoints with just a few mouse clicks. The NAVigator features enhanced matrix switching capabilities, that enable switching video, audio, or USB signals between individual devices or groups of devices simultaneously. It also delivers breakaway switching capability with independent routing of video, audio, or USB signals. In addition, the NAVigator can copy EDID settings from any attached display or select from a wide range of pre-defined settings, ensuring that all sources power up properly and reliably output content for display. Finally, the NAVigator System Manager provides intuitive alarm and monitoring features to assist administrators in quickly identifying issues and applying solutions.



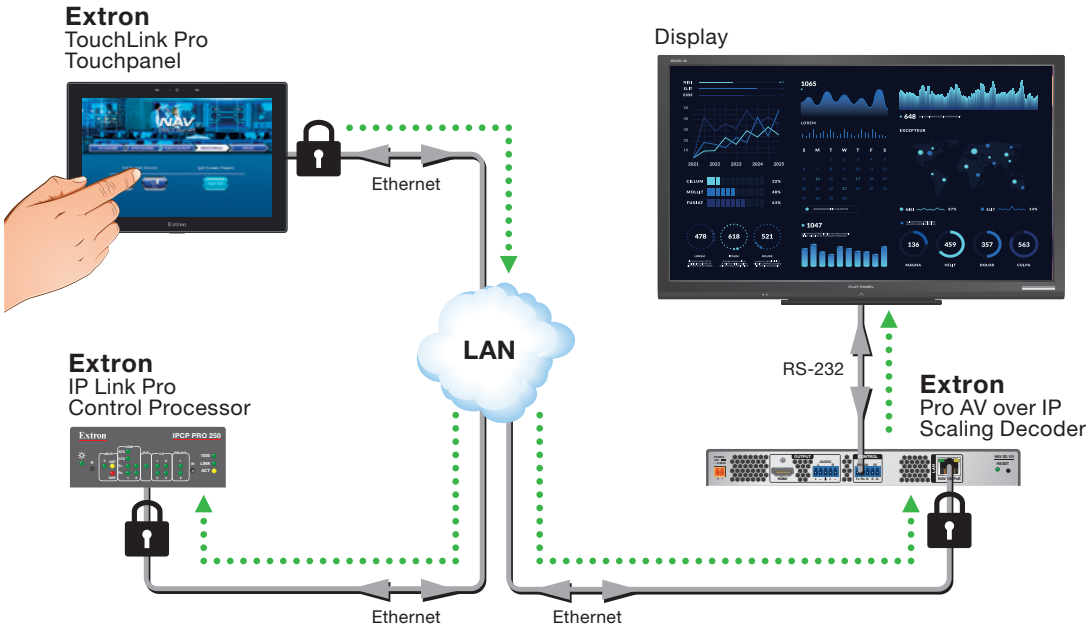
PRO SERIES CONTROL

Control systems are an integral part of any quality AV installation, and the NAV system takes control to the next level. Unique Pro Series control integration turns any NAV endpoint into an extension of your Extron Pro Series control system. NAV encoders and scaling decoders feature built-in Pro Series control ports for CEC, RS-232, IR, and digital I/O, expanding your Extron Pro Series control system to anywhere the network can reach without additional hardware.

NAV Pro Series control offers full integration with Extron TouchLink Pro touchpanels, eBUS button panels, and IP Link Pro control processors. With Extron Global Configurator or Global Scripter, it's easy to configure and access NAV Pro Series control ports on an encoder or scaling decoder. Device drivers and modules make it simple to control cameras, streaming boxes, and document cameras connected to NAV encoders, or projectors and displays connected to NAV decoders. With the NAV Series, the same IP Link Pro control processor that manages and controls your NAV video and audio switching can control multiple devices in remote locations. This unique Extron feature saves time and expense by eliminating the need for additional control processors at the endpoints.

NAV Pro Series control ports are compatible with Extron Show Me cables for convenient connectivity and user input selection in collaborative environments. Operating a Show Me cable is convenient and straight-forward; simply connect an HDMI Show Me cable to a NAV encoder and press the Share button to instantly share your content onto the display.

All communications between NAV endpoints and Pro Series control systems are encrypted, ensuring secure control of connected devices at any location. NAV solutions are ideal for any application requiring device control, flexible video, audio, USB, and Ethernet switching, and reliable transmission of high-quality content.



NAVigator

The Extron NAVigator System Manager provides secure configuration, management, and control of the NAV Pro AV over IP systems. Use the intuitive, browser-based NAVigator to configure, monitor, control, update, backup, restore, run diagnostics, and troubleshoot. An entry level NAVigator system supports 16 endpoints and can expand with LinkLicense to support 48, 96, or 240 devices. Multiple NAVigator units working together can support thousands of NAV endpoints. Two isolated, independent LAN ports optionally facilitate a separate management network, enabling flexible designs with enhanced security, by eliminating AV traffic from the management network. Extron Pro Series controls work with the NAVigator as a centralized communication bridge for secure control of all attached devices. The NAVigator System Manager can be PoE powered by the network.

Fast and Reliable Switching

NAV systems are not limited to video extension and distribution. Many encoders and decoders can be deployed together to create an IP-based video, audio, and USB matrix. NAV Pro AV over IP solutions provide the flexibility and scalability of an IP-based system, with the integration-friendly video, audio, and USB switching features found in conventional Extron matrix switchers, such as Key Minder®, EDID Minder®, and USB and audio breakaway. The Extron Pro Series control system with the NAVigator System Manager enhance matrix switching capabilities, featuring advanced control and enterprise-level system monitoring.

Security

NAVigator System Manager encrypts all communication between the NAVigator and NAV endpoints with Secure Shell - SSH protocol, ensuring every command on the network is fully encrypted from control processor to endpoint. NAV endpoints also support 802.1X port-based Network Access Control. When applied, 802.1X authentication requires approval from all devices before granting network access. Support for Active Directory simplifies user management and group authentication, and Secure Real-Time Transport Protocol - SRTP ensures encryption, message authentication, and data integrity of video and data streams. The Extron cryptographic module meets NIST and CCS guidelines and is certified by CMVP to the FIPS 140-2 information processing standard to ensure the protection of sensitive data.

Model	Version Description	Part Number	Model	Version Description	Part Number
NAVigator	Entry level version for 16 Endpoints	60-1534-01	LinkLicense	Upgrade to 96 Endpoints	79-2551-03
LinkLicense	Upgrade to 48 Endpoints	79-2551-02	LinkLicense	Upgrade to 240 Endpoints	79-2551-04

NAV E 101 and NAV SD 101

The NAV E 101 and NAV SD 101 are a Pro AV over IP encoder and scaling decoder that deliver ultra-low latency, visually lossless video and audio signals over 1 Gbps IP networks at low bit rates. The Extron patented PURE3® codec delivers groundbreaking performance with real-time, high-quality video at resolutions up to 4K @ 60 Hz with 4:4:4 chroma sampling. The NAV E 101 and NAV SD 101 are fully compatible with NAV 10 Gbps endpoints, increasing flexibility and scalability of deployments. Support for analog, embedded digital HDMI audio and AES67 Audio Over IP facilitate flexible integration with DMP 128 Plus audio DSP processors or other IP enabled audio components. Purpose-built to support demanding professional AV applications, the highly scalable and powerful NAV platform enables secure deployment of AV signals to thousands of endpoints. The NAV E 101 and NAV SD 101 are fully integrated with Extron Pro Series control systems to create powerful, flexible, and easy to use Pro AV over IP systems.

Features

- Streams video and audio over a 1 Gbps Ethernet interface to IP networks
- Supports HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma
- PURE3 Codec with lossless, ultra-low latency video
- PURE3 Intelligent Selective Streaming for efficient bit rates
- PURE3 error concealment
- Interoperable with 10 Gbps NAV endpoints
- AES67 audio support for flexible DSP integration
- HDCP 2.3 compliant
- HDCP Visual Confirmation
- PoE+ compatibility eliminates the need for a local power supply
- SRTP stream encryption
- Audio breakaway enables independent audio and video switching
- Customizable Screen Saver
- Priority Routing
- Active Directory support
- 802.1X port-based Network Access Control
- WindoWall® Mode supports videowall applications
- NAV SmartGlide™ KVM Workstation capability
- Embedded browser interface
- EDID Minder® automatically manages EDID communication between connected devices
- Key Minder® continuously verifies HDCP compliance for quick, reliable switching
- Supports analog and embedded HDMI audio signals
- Integrated with Extron Pro Series control systems for secure, user-friendly external control
- CEC – Consumer Electronics Control capability
- Secure Platform Device for extended Extron Pro Series Control
- Multicast filtering with IGMPv2/v3
- One-button endpoint identification
- External Extron Everlast™ power supply included and covered by a 7-year parts and labor warranty
- 1" (2.5 cm) high, half rack width metal enclosure

NAV E 101

1G Pro AV Over IP Encoder - HDMI

Unique Features

- HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma sampling
- Visually lossless video with ultra-low latency over 1 Gbps IP network
- HDMI loop-through
- Extron Pro Series control system integration with SPD extension
- Digital, analog, and AES67 audio with breakaway capability
- Secure, 802.1X, AES encrypted, and FIPS 140-2 verified

Model	Version Description	Part Number
NAV E 101	1G HDMI Encoder	60-1525-12

NAV SD 101

1G Pro AV over IP Scaling Decoder - HDMI

Unique Features

- Advanced Extron Vector™ 4K scaling technology
- WindoWall® Mode supports videowall applications
- Extron Pro Series control system integration with SPD extension
- Digital, analog, and AES67 audio with breakaway capability
- Secure, 802.1X, AES encrypted, and FIPS 140-2 verified

Model	Version Description	Part Number
NAV SD 101	1G HDMI Scaling Decoder	60-1525-14

NAV E 501 and NAV SD 501

The NAV E 501 and NAV SD 501 are a Pro AV over IP encoder and scaling decoder that deliver ultra-low latency, visually lossless video, audio, USB, and Ethernet signals over 1 Gbps IP networks at low bitrates. The Extron patented PURE3® codec delivers groundbreaking performance with real-time, high quality video at resolutions up to 4K @ 60 Hz with 4:4:4 chroma sampling. The NAV E 501 and NAV SD 501 are fully compatible with NAV 10 Gbps endpoints, increasing flexibility and scalability of deployments. Support for analog and embedded digital HDMI audio and AES67 Audio Over IP facilitate flexible integration with DMP 128 Plus audio DSP processors or other IP enabled audio components. These 500 Series endpoints also deliver USB 2.0 extension and switching, along with Ethernet expansion. Purpose-built to support demanding professional AV applications, the highly scalable and powerful NAV platform enables secure deployment of AV signals to thousands of endpoints.

Features

- Streams video, audio, USB, and Ethernet over 1 Gbps IP networks
- Supports HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma
- PURE3 Codec with lossless, ultra-low latency video
- PURE3 Intelligent Selective Streaming for efficient bit rates
- PURE3 error concealment
- Interoperable with 10 Gbps NAV endpoints
- AES67 audio support for flexible DSP integration
- USB 2.0 extension
- Ethernet expansion
- HDCP 2.3 compliant
- HDCP Visual Confirmation
- PoE+ compatibility eliminates the need for a local power supply
- SRTP stream encryption
- Audio breakaway enables independent audio and video switching
- Customizable Screen Saver
- Priority Routing
- 802.1X port-based Network Access Control
- WindoWall® Mode supports videowall applications
- NAV SmartGlide™ KVM Workstation capability
- Embedded browser interface
- EDID Minder® automatically manages EDID communication between connected devices
- Key Minder® continuously verifies HDCP compliance for quick, reliable switching
- Supports analog and embedded HDMI audio signals
- Integrated with Extron Pro Series control systems for secure, user-friendly external control
- CEC – Consumer Electronics Control capability
- Secure Platform Device for extended Extron Pro Series Control
- Multicast filtering with IGMPv2/v3
- One-button endpoint identification
- Active Directory support
- External Extron Everlast™ power supply included and covered by a 7-year parts and labor warranty
- 1" (2.5 cm) high, half rack width metal enclosure

NAV E 501

1G Pro AV Over IP Encoder - HDMI, Ethernet, and USB

Unique Features

- NAV SmartGlide™ KVM Workstation capability
- USB 2.0 extension
- Ethernet expansion
- HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma sampling
- Visually lossless video with ultra-low latency over 1 Gbps IP network
- HDMI loop-through
- Extron Pro Series control system integration with SPD extension
- Secure, 802.1X, AES encrypted, and FIPS 140-2 verified

Model	Version Description	Part Number
NAV E 501	1G HDMI, Ethernet, USB Encoder	60-1525-01

NAV SD 501

1G Pro AV over IP Scaling Decoder - HDMI, Ethernet, and USB

Unique Features

- Advanced Extron Vector™ 4K scaling technology
- WindoWall® Mode supports videowall applications
- NAV SmartGlide™ KVM Workstation capability
- USB 2.0 extension
- Ethernet expansion
- Extron Pro Series control system integration with SPD extension
- Digital, analog, and AES67 audio with breakaway capability
- Secure, 802.1X, AES encrypted, and FIPS 140-2 verified

Model	Version Description	Part Number
NAV SD 501	1G HDMI, Ethernet, USB Scaling Decoder	60-1525-03

NAV E 511 and NAV SD 511

The NAV E 511 and NAV SD 511 are a Pro AV over IP optical encoder and scaling decoder that deliver ultra-low latency, visually lossless video, audio, USB, and Ethernet signals over 1 Gbps optical Ethernet interface to IP networks at low bitrates. The Extron patented PURE3® codec delivers groundbreaking performance with real-time, high quality video at resolutions up to 4K @ 60 Hz with 4:4:4 chroma sampling. The NAV E 511 and NAV SD 511 are fully compatible with NAV 10 Gbps endpoints, increasing flexibility and scalability of deployments. Support for analog and embedded digital HDMI audio and AES67 Audio Over IP facilitate flexible integration with DMP 128 Plus audio DSP processors or other IP enabled audio components. These 500 Series endpoints also deliver USB 2.0 extension and switching, along with Ethernet expansion. Purpose-built to support demanding professional AV applications, the highly scalable and powerful NAV platform enables secure deployment of AV signals to thousands of endpoints.

Features

- Streams video, audio, USB, and Ethernet over a 1 Gbps optical Ethernet interface to IP networks
- Supports HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma
- PURE3 Codec with lossless, ultra-low latency video
- PURE3 Intelligent Selective Streaming for efficient bit rates
- PURE3 error concealment
- Interoperable with 10 Gbps NAV endpoints
- AES67 audio support for flexible DSP integration
- USB 2.0 extension
- Ethernet expansion
- HDCP 2.3 compliant
- HDCP Visual Confirmation
- PoE+ compatibility eliminates the need for a local power supply
- SRTP stream encryption
- Audio breakaway enables independent audio and video switching
- Customizable Screen Saver
- Priority Routing
- 802.1X port-based Network Access Control
- WindoWall® Mode supports videowall applications
- NAV SmartGlide™ KVM Workstation capability
- Embedded browser interface
- EDID Minder® automatically manages EDID communication between connected devices
- Key Minder® continuously verifies HDCP compliance for quick, reliable switching
- Supports analog and embedded HDMI audio signals
- Integrated with Extron Pro Series control systems for secure, user-friendly external control
- CEC – Consumer Electronics Control capability
- Secure Platform Device for extended Extron Pro Series Control
- Multicast filtering with IGMPv2/v3
- One-button endpoint identification
- Active Directory support
- External Extron Everlast™ power supply included and covered by a 7-year parts and labor warranty
- 1" (2.5 cm) high, half rack width metal enclosure

NAV E 511

1G Fiber Pro AV Over IP Encoder - HDMI, Ethernet, and USB

Unique Features

- Single or multimode optical 1G Ethernet interface up to 10km from the switch
- Adjustable bit rate
- Visually lossless 4K/60 4:4:4 video with ultra-low latency
- NAV SmartGlide™ KVM Workstation capability
- USB 2.0 extension
- Ethernet expansion

Model	Version Description	Part Number
NAV E 511	10G HDMI, Ethernet, USB Encoder - Multimode	60-1558-05
NAV E 511	10G HDMI, Ethernet, USB Encoder - Singlemode	60-1558-06

NAV SD 511

1G Fiber Pro AV over IP Scaling Decoder - HDMI, Ethernet, and USB

Unique Features

- Single or multimode optical 1G Ethernet interface up to 10km from the switch
- Advanced Extron Vector™ 4K scaling technology
- WindoWall® Mode supports videowall applications
- NAV SmartGlide™ KVM Workstation capability
- USB 2.0 extension
- Ethernet expansion

Model	Version Description	Part Number
NAV SD 511	10G HDMI, Ethernet, USB Scaling Decoder-Multimode	60-1558-07
NAV SD 511	10G HDMI, Ethernet, USB Scaling Decoder-Singlemode	60-1558-08

NAV PRO AVoIP DTP SYSTEMS

NAV E 101 DTP

The NAV E 101 DTP is a Pro AV over IP encoder that receives video, audio, and control signals from Extron DTP 330- or 230-enabled transmitters over up to 330 feet of shielded CATx cable, and streams ultra-low latency, high quality content over standard Gigabit IP networks. The Extron patented PURE3® codec delivers groundbreaking performance with high quality video at resolutions up to 4K @ 30 Hz with 4:4:4 chroma sampling and ultra-low latency. The NAV E 101 DTP is fully compatible with NAV 1 and 10 Gbps decoders, increasing range and scalability for large deployments. Support for embedded digital HDMI and AES67 audio over IP facilitates flexible integration with DMP 128 Plus DSPs or other IP-enabled audio components. The NAV E 101 DTP is purpose-built to support demanding professional AV applications, the highly scalable and powerful NAV platform enables secure deployment of AV signals to thousands of endpoints.

Features

- Converts, encodes, and streams video, audio, and control signals from DTP transmitters over 1 Gbps IP networks
- Supports resolutions up to 4K/30 @ 4:4:4
- PURE3 Codec with lossless, ultra-low latency video
- PURE3 Intelligent Selective Streaming for efficient bit rates
- PURE3 error concealment
- Interoperable with 10 Gbps NAV decoders
- AES67 audio support
- HDCP 2.3 compliant
- SRTP stream encryption
- Audio breakaway enables independent audio and video switching
- SRTP stream encryption
- Customizable Screen Saver
- Priority Routing
- Active Directory support
- Adjustable bit rate
- HDMI loop-through
- Embedded browser interface
- 802.1X port-based Network Access Control
- EDID Minder® automatically manages EDID communication between connected devices
- Key Minder® continuously verifies HDCP compliance for quick, reliable switching
- HDCP Visual Confirmation
- Extron XTP DTP 24 shielded twisted pair cable is strongly recommended for optimal performance
- Compatible with CATx shielded twisted pair cable
- Remote powering of select DTP transmitters
- RJ-45 signal and link LED indicators for DTP port
- Integrates with Pro Series control systems for secure, user-friendly external control
- CEC – Consumer Electronics Control capability
- Secure Platform Device for extended Extron Pro Series Control
- Multicast filtering with IGMPv2/v3
- One-button endpoint identification
- External Extron Everlast™ power supply included
- Extron Everlast Power Supply is covered by a 7-year parts and labor warranty
- 1.66 (4.2 cm) high, half rack width metal enclosure

Model	Version Description	Part Number
NAV E 101 DTP	1G Pro AV over IP Encoder – DTP Input	60-1525-15

1G PRO AV OVER IP WALLPLATE - HDMI AND ETHERNET

NAV E 201 D and NAV E 401 D

The NAV E 201 D and NAV E 401 D are Pro AV over IP encoders in a decorator-style wallplate package, that deliver ultralow latency, visually lossless video, audio, and Ethernet signals over 1 Gbps IP networks at low bitrates. The Extron patented PURE3® codec delivers groundbreaking performance with real-time, high quality video at resolutions up to 4K @ 60 Hz with 4:4:4 chroma sampling. The NAV E 201 D and NAV E 401 D are fully compatible with NAV 10 Gbps decoders, increasing flexibility and scalability of deployments. Support for embedded digital HDMI audio and AES67 Audio Over IP facilitate flexible integration with DMP 128 Plus audio DSP processors or other IP enabled audio components. The NAV E 401 D also provides Ethernet expansion capability. Purpose-built to support demanding professional AV applications, the highly scalable and powerful NAV platform enables secure deployment of AV signals to thousands of endpoints.

Features

- Streams video, audio, and Ethernet over 1 Gbps IP networks
- Supports HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma
- PURE3 Codec with lossless, ultra-low latency video
- PURE3 Intelligent Selective Streaming for efficient bit rates
- PURE3 error concealment
- Interoperable with 10 Gbps NAV endpoints
- AES67 audio support for flexible DSP integration
- HDCP 2.3 compliant
- HDCP Visual Confirmation
- PoE+ compatibility eliminates the need for a local power supply
- SRTP stream encryption
- Audio breakaway enables independent audio and video switching
- Priority Routing
- 802.1X port-based Network Access Control
- Embedded browser interface
- EDID Minder® automatically manages EDID communication between connected devices
- Key Minder® continuously verifies HDCP compliance for quick, reliable switching
- Supports analog and embedded HDMI audio signals
- Integrated with Extron Pro Series control systems for secure, user-friendly external control
- CEC – Consumer Electronics Control capability
- Secure Platform Device for extended Extron Pro Series Control
- Multicast filtering with IGMPv2/v3
- One-button endpoint identification
- Active Directory support
- External Extron Everlast™ power supply included and covered by a 7-year parts and labor warranty

NAV E 201 D

1G Pro AV Over IP Encoder - HDMI

Unique Features

- Decorator-style wallplate provides convenience and security
- Adjustable bit rate
- HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma sampling
- Visually lossless video with ultra-low latency over 1 Gbps IP network
- HDMI loop-through
- Extron Pro Series control system integration with SPD extension
- Secure, 802.1X, AES encrypted, and FIPS 140-2 verified

Model	Version Description	Part Number
NAV E 201 D	1G HDMI Encoder - Decorator White	60-1525-06
NAV E 201 D	1G HDMI Encoder - Decorator Black	60-1525-05

NAV E 401 D

1G Pro AV over IP Encoder - HDMI and Ethernet

Unique Features

- Decorator-style wallplate provides convenience and security
- Ethernet expansion
- Adjustable bit rate
- HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma sampling
- Visually lossless video with ultra-low latency over 1 Gbps IP network
- HDMI loop-through
- Extron Pro Series control system integration with SPD extension
- Secure, 802.1X, AES encrypted, and FIPS 140-2 verified

Model	Version Description	Part Number
NAV E 401 D	1G HDMI Ethernet Encoder - Decorator White	60-1525-08
NAV E 401 D	1G HDMI Ethernet Encoder - Decorator Black	60-1525-07

10G PRO AV OVER IP WALLPLATE - HDMI AND ETHERNET

NAV 10E 201 D and NAV 10E 401 D

The NAV 10E 201 D and NAV 10E 401 D are Pro AV over IP encoders in a decorator-style wallplate package, that deliver ultra-low latency, lossless video, audio, and Ethernet signals over 10 Gbps IP networks at low bitrates. The Extron patented PURE3® codec delivers groundbreaking performance with real-time, high quality video at resolutions up to 4K @ 60 Hz with 4:4:4 chroma sampling. The NAV 10E 201 D and NAV 10E 401 D are fully compatible with NAV 1 Gbps decoders, increasing flexibility and scalability of deployments. Support for embedded digital HDMI audio and AES67 Audio Over IP facilitate flexible integration with DMP 128 Plus audio DSP processors or other IP enabled audio components. The NAV 10E 401 D also provides Ethernet expansion capability. Purpose-built to support demanding professional AV applications, the highly scalable and powerful NAV platform enables secure deployment of AV signals to thousands of endpoints.

Features

- Streams video, audio, and Ethernet over 10 Gbps IP networks
- Supports HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma
- PURE3 Codec with lossless, ultra-low latency video
- PURE3 Intelligent Selective Streaming for efficient bit rates
- PURE3 error concealment
- Interoperable with 1 Gbps NAV endpoints
- AES67 audio support for flexible DSP integration
- HDCP 2.3 compliant
- HDCP Visual Confirmation
- SRTP stream encryption
- Audio breakaway enables independent audio and video switching
- Priority Routing
- 802.1X port-based Network Access Control
- Embedded browser interface
- EDID Minder® automatically manages EDID communication between connected devices
- Key Minder® continuously verifies HDCP compliance for quick, reliable switching
- Integrated with Extron Pro Series control systems for secure, user-friendly external control
- CEC – Consumer Electronics Control capability
- Secure Platform Device for extended Extron Pro Series Control
- Multicast filtering with IGMPv2/v3
- One-button endpoint identification
- Active Directory support
- External Extron Everlast™ power supply included and covered by a 7-year parts and labor warranty

NAV 10E 201 D

10G Pro AV Over IP Encoder - HDMI

Unique Features

- Decorator-style wallplate provides convenience and security
- Single or multimode optical 10G Ethernet interface up to 10km from the switch
- Adjustable bit rate
- HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma sampling
- Lossless video with ultra-low latency over 10 Gbps IP network
- HDMI loop-through
- Extron Pro Series control system integration with SPD extension
- Secure, 802.1X, AES encrypted, and FIPS 140-2 verified

Model	Version Description	Part Number
NAV 10E 201D	10G HDMI Encoder - Decorator White - SM	60-1572-24
NAV 10E 201D	10G HDMI Encoder - Decorator White - MM	60-1572-23
NAV 10E 201D	10G HDMI Encoder - Decorator Black - SM	60-1572-22
NAV 10E 201D	10G HDMI Encoder - Decorator Black - MM	60-1572-21

NAV 10E 401 D

10G Pro AV over IP Encoder - HDMI and Ethernet

Unique Features

- Decorator-style wallplate provides convenience and security
- Single or multimode optical 10G Ethernet interface up to 10km from the switch
- Ethernet expansion
- Adjustable bit rate
- HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma sampling
- Lossless video with ultra-low latency over 10 Gbps IP network
- HDMI loop-through
- Extron Pro Series control system integration with SPD extension
- Secure, 802.1X, AES encrypted, and FIPS 140-2 verified

Model	Version Description	Part Number
NAV 10E 401 D	10G HDMI, Ethernet Encoder - Decorator White - SM	60-1572-28
NAV 10E 401 D	10G HDMI, Ethernet Encoder - Decorator White - MM	60-1572-27
NAV 10E 401 D	10G HDMI, Ethernet Encoder - Decorator Black - SM	60-1572-26
NAV 10E 401 D	10G HDMI, Ethernet Encoder - Decorator Black - MM	60-1572-25

NAV 10E 101 and NAV 10SD 101

The NAV 10E 101 and NAV 10SD 101 are an Pro AV over IP optical encoder and scaling decoder that deliver ultra-low latency, lossless video and audio signals over 10 Gbps optical Ethernet interface to IP networks at low bit rates. The Extron patented PURE3® codec delivers groundbreaking performance with real-time, high quality video at resolutions up to 4K @ 60 Hz with 4:4:4 chroma sampling. The NAV 10E 101 and NAV 10SD 101 are fully compatible with NAV 1 Gbps endpoints, increasing flexibility and scalability of deployments. Support for analog and embedded digital HDMI audio and AES67 Audio Over IP facilitate flexible integration with DMP 128 Plus audio DSP processors or other IP enabled audio components. Purpose-built to support demanding professional AV applications, the highly scalable and powerful NAV platform enables secure deployment of AV signals to thousands of endpoints.

Features

- Streams video and audio over a 10 Gbps optical Ethernet interface to IP networks
- Single or multimode optical 10G Ethernet interface up to 10km
- Supports HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma
- PURE3 Codec with lossless, ultra-low latency video
- PURE3 Intelligent Selective Streaming for efficient bit rates
- PURE3 error concealment
- Interoperable with 1 Gbps NAV endpoints
- AES67 audio support for flexible DSP integration
- HDCP 2.3 compliant
- PoE+ compatibility eliminates the need for a local power supply
- SRTP stream encryption
- Audio breakaway enables independent audio and video switching
- Customizable Screen Saver
- Priority Routing
- Active Directory support
- 802.1X port-based Network Access Control
- WindoWall® Mode supports videowall applications
- NAV SmartGlide™ KVM Workstation capability
- Embedded browser interface
- EDID Minder® automatically manages EDID communication between connected devices
- Key Minder® continuously verifies HDCP compliance for quick, reliable switching
- HDCP Visual Confirmation
- Supports analog and embedded HDMI audio signals
- Integrated with Extron Pro Series control systems for secure, user-friendly external control
- CEC – Consumer Electronics Control capability
- Secure Platform Device for extended Extron Pro Series Control
- Multicast filtering with IGMPv2/v3
- One-button endpoint identification
- External Extron Everlast™ power supply included and covered by a 7-year parts and labor warranty
- 1" (2.5 cm) high, half rack width metal enclosure

NAV 10E 101

10G Pro AV Over IP Encoder - HDMI

Unique Features

- Single or multimode optical 10G Ethernet interface up to 10km from the switch
- HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma sampling
- Adjustable bit rate
- Lossless video with ultra-low latency over 10 Gbps IP networks
- Extron Pro Series control system integration with SPD extension
- Digital, analog, and AES67 audio with breakaway capability
- Secure, 802.1X, AES encrypted, and FIPS 140-2 verified

Model	Version Description	Part Number
NAV 10E 101	10G HDMI Encoder - Multimode	60-1572-15
NAV 10E 101	10G HDMI Encoder - Singlemode	60-1572-16

NAV 10SD 101

10G Pro AV over IP Scaling Decoder - HDMI

Unique Features

- Single or multimode optical 10G Ethernet interface up to 10km from the switch
- Advanced Extron Vector™ 4K scaling technology
- WindoWall® Mode supports videowall applications
- Extron Pro Series control system integration with SPD extension
- Digital, analog, and AES67 audio with breakaway capability
- Secure, 802.1X, AES encrypted, and FIPS 140-2 verified

Model	Version Description	Part Number
NAV 10SD 101	10G HDMI Scaling Decoder - Multimode	60-1572-19
NAV 10SD 101	10G HDMI Scaling Decoder - Singlemode	60-1572-20

NAV 10E 501 and NAV 10SD 501

The NAV 10E 501 and NAV 10SD 501 are an AV over IP optical encoder and scaling decoder that deliver ultra-low latency, lossless video, audio, USB, and Ethernet signals over 10 Gbps optical Ethernet interface to IP networks at low bitrates. The Extron patented PURE3® codec delivers groundbreaking performance with real-time, high quality video at resolutions up to 4K @ 60 Hz with 4:4:4 chroma sampling. The NAV 10E 501 and NAV 10SD 501 are fully compatible with NAV 1 Gbps endpoints, increasing flexibility and scalability of deployments. Support for analog and embedded digital HDMI audio and AES67 Audio Over IP facilitate flexible integration with DMP 128 Plus audio DSP processors or other IP enabled audio components. These 500 Series endpoints also deliver USB 2.0 extension and switching, along with Ethernet expansion. Purpose-built to support demanding professional AV applications, the highly scalable and powerful NAV platform enables secure deployment of AV signals to thousands of endpoints.

Features

- Streams video, audio, USB, and Ethernet over a 10 Gbps optical Ethernet interface to IP networks
- Single or multimode optical 10G Ethernet interface up to 10km
- Supports HDMI 2.0 at resolutions up to 4K/60 @ 4:4:4 chroma
- PURE3 Codec with lossless, ultra-low latency video
- PURE3 Intelligent Selective Streaming for efficient bit rates
- PURE3 error concealment
- Interoperable with 1 Gbps NAV endpoints
- AES67 audio support for flexible DSP integration
- USB 2.0 extension
- Ethernet expansion
- HDCP 2.3 compliant
- PoE+ compatibility eliminates the need for a local power supply
- SRTP stream encryption
- Audio breakaway enables independent audio and video switching
- Customizable Screen Saver
- Priority Routing
- 802.1X port-based Network Access Control
- WindoWall® Mode supports videowall applications
- NAV SmartGlide™ KVM Workstation capability
- Embedded browser interface
- EDID Minder® automatically manages EDID communication between connected devices
- Key Minder® continuously verifies HDCP compliance for quick, reliable switching
- HDCP Visual Confirmation
- Supports analog and embedded HDMI audio signals
- Integrated with Extron Pro Series control systems for secure, user-friendly external control
- CEC – Consumer Electronics Control capability
- Secure Platform Device for extended Extron Pro Series Control
- Multicast filtering with IGMPv2/v3
- One-button endpoint identification
- Active Directory support
- External Extron Everlast™ power supply included and covered by a 7-year parts and labor warranty
- 1" (2.5 cm) high, half rack width metal enclosure

NAV 10E 501

10G Pro AV Over IP Encoder - HDMI, Ethernet, and USB

Unique Features

- Single or multimode optical 10G Ethernet interface up to 10km from the switch
- Adjustable bit rate
- Lossless 4K/60 4:4:4 video with ultra-low latency
- NAV SmartGlide™ KVM Workstation capability
- USB 2.0 extension
- Ethernet expansion

Model	Version Description	Part Number
NAV 10E 501	10G HDMI, Ethernet, USB Encoder - Multimode	60-1572-01
NAV 10E 501	10G HDMI, Ethernet, USB Encoder - Singlemode	60-1572-02

NAV 10SD 501

10G Pro AV over IP Scaling Decoder - HDMI, Ethernet, and USB

Unique Features

- Single or multimode optical 10G Ethernet interface up to 10km from the switch
- Advanced Extron Vector™ 4K scaling technology
- WindoWall® Mode supports videowall applications
- NAV SmartGlide™ KVM Workstation capability
- USB 2.0 extension
- Ethernet expansion

Model	Version Description	Part Number
NAV 10SD 501	10G HDMI, Ethernet, USB Scaling Decoder-Multimode	60-1572-07
NAV 10SD 501	10G HDMI, Ethernet, USB Scaling Decoder-Singlemode	60-1572-08

Successful deployment of Pro AV Over IP applications requires some networking proficiency. Extron certification programs prepare integrators to successfully deploy and troubleshoot networked AV systems. For more information about the Extron **Network AV Specialist** certification program for NAV, please see the certifications page toward the back of this document.

When deploying Pro AV over IP, it's important to be familiar with the following key terms:

Multicast - Multicast is a "one-to-many" form of group communication where a single data stream is addressed to a group of destinations simultaneously. It is considerably more efficient, significantly reducing bandwidth required over Unicast, a "many-to-many" form of group communication, where a separate stream is sent to each endpoint.

IGMP - Internet Group Management Protocol, or IGMP, is a network layer (Layer 3) protocol used to establish membership in a **Multicast** group. IGMP manages multicast group memberships by marking packets in messages sent between a router and the hosts. Each sending host applies a unique identifier to multicast packets so that they can be identified, then separated or forwarded as required.

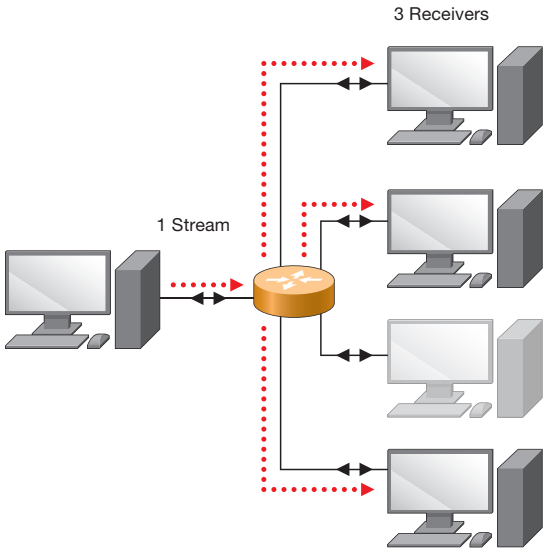
IGMP Snooping - Most network switches are Layer 2 devices operating on the link layer of the OSI protocol. Since Layer 2 devices are typically unaware of IP addresses and the IGMP protocol, they cannot filter multicast packets. With IGMP snooping, Layer 2 devices, such as a switch, can listen to IGMP queries and configure Layer 2 LAN ports to selectively forward multicast traffic to only the ports that should receive it.

For more detailed information, please refer to the Extron **Multicast for AV Streaming** whitepaper available at: www.extron.com/multicastpaper.

NETWORK DESIGN SUPPORT

To ensure optimal performance and reliability, a team of Extron networking experts are available to provide personalized assistance with network design and selecting the right network equipment for your unique application.

For more information, contact your Extron representative.



Multicast "one-to-many" streaming, where a single stream is delivered to multiple endpoints, significantly conserving bandwidth

VALIDATED SWITCHES

The Extron Network Technologies Support Group works with industry-leading network switch manufacturers to validate their switches to ensure they work flawlessly in your next Extron Pro AV over IP application. Only switches that pass our extensive testing program make our list of Validated Switches. System designers are assured that every switch on our Validated Switches list has been rigorously evaluated and tested to work together with the Extron NAV Pro AVoIP Series to ensure optimum compatibility. This ensures consistent and reliable operation, which simplifies integration and reduces the need for troubleshooting.

Extron also offers setup guides that will walk you through network switch settings, streamlining the frequently tedious task of switch configuration, so that you can spend more time focusing on the other parts of the installation. Additionally, our team of dedicated networking experts can provide the information you need to communicate clearly with IT departments for seamless network integration.

VALIDATED SWITCHES

Our Network Technologies Support Group brings together an unparalleled team of senior AV engineers that specialize in Enterprise IT Network Management. We are here to assist you from pre-sales conceptual design to post-sale commissioning, ensuring that your NAV deployment meets your every expectation.

ARISTA

JUNIPER NETWORKS

CISCO

Extreme networks

barox

aruba a Hewlett Packard Enterprise company

NETGEAR

FORTINET

DELL

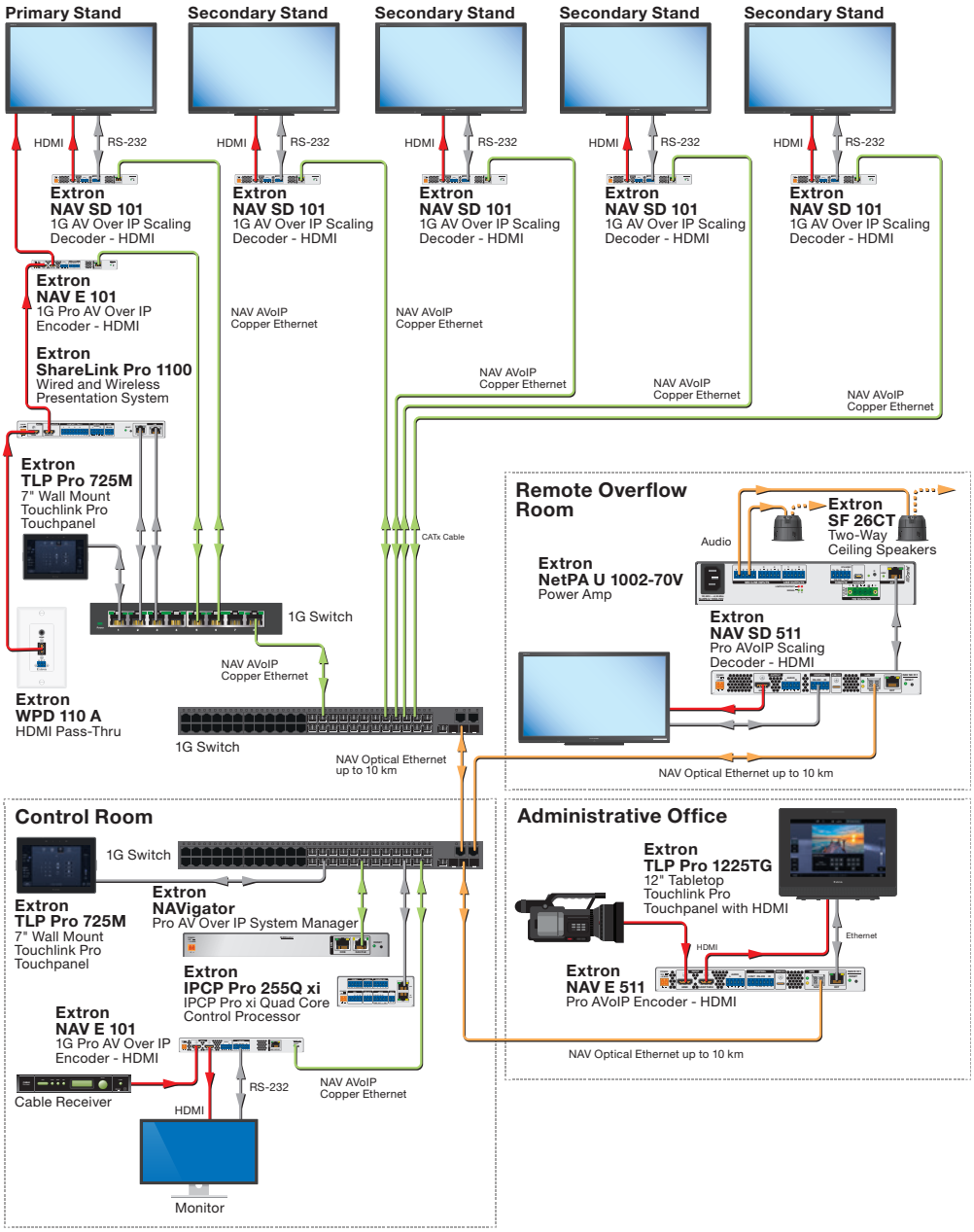
D-Link

COMMSCOPE RUCKUS

The Validated Switches List can be found on any NAV product page. Simply click on the "Validated Switches" button on the right side of the screen and you will see the most up-to-date list of switches which can be sorted and filtered to easily find the right switch for your application.

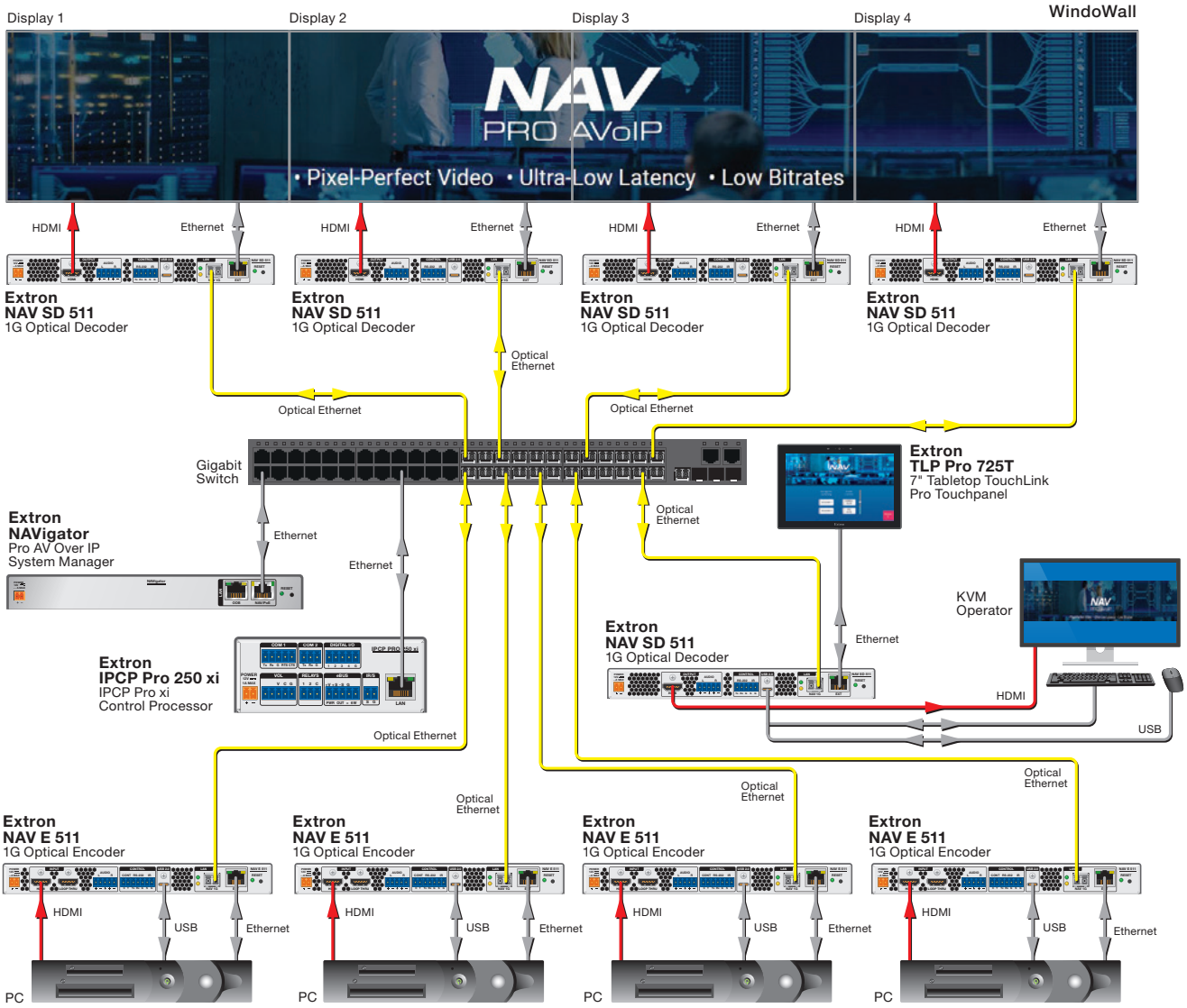
FLEXIBLE LEARNING SPACE

In flexible learning spaces NAV Series Pro AV over IP is used to distribute and switch ultra-low latency, high-quality video, audio, and control signals over the school's existing 1 Gbps IP network. The content source may be selected by a TLP Pro 725M at the primary stand or lectern working with an IPCP Pro 255Q xi Quad Core Control Processor and NAVigator in the control room to automate AV system functions. The primary AV stands originate content from an HDMI input or the ShareLink Pro 1100 with Miracast that is used to share wireless BYOD content. This is viewed locally on the primary stand display through the NAV E 101 HDMI loop-thru and may be distributed over multicast IP to all other primary and secondary stands, and overflow rooms throughout campus. In overflow rooms, NAV SD 511 scaling decoder provides Ethernet expansion to a NetPA U 1002-70V power amplifier with DSP that supports NAV AES67 audio streaming. SF 26 CT two-way ceiling speakers accurately reproduce audio. Shared resources such as a streaming box connected to a NAV E 101 encoder in the control room or a camera connected to a NAV E 511 encoder in the administrative office may also be shared live over the multicast IP network to all NAV scaling decoders. A TLP Pro 1225TG Touchpanel in the administrative office, with an HDMI input enables both control and confidence monitoring. This may be used for campus wide meetings, or to broadcast emergency information to all learning spaces.



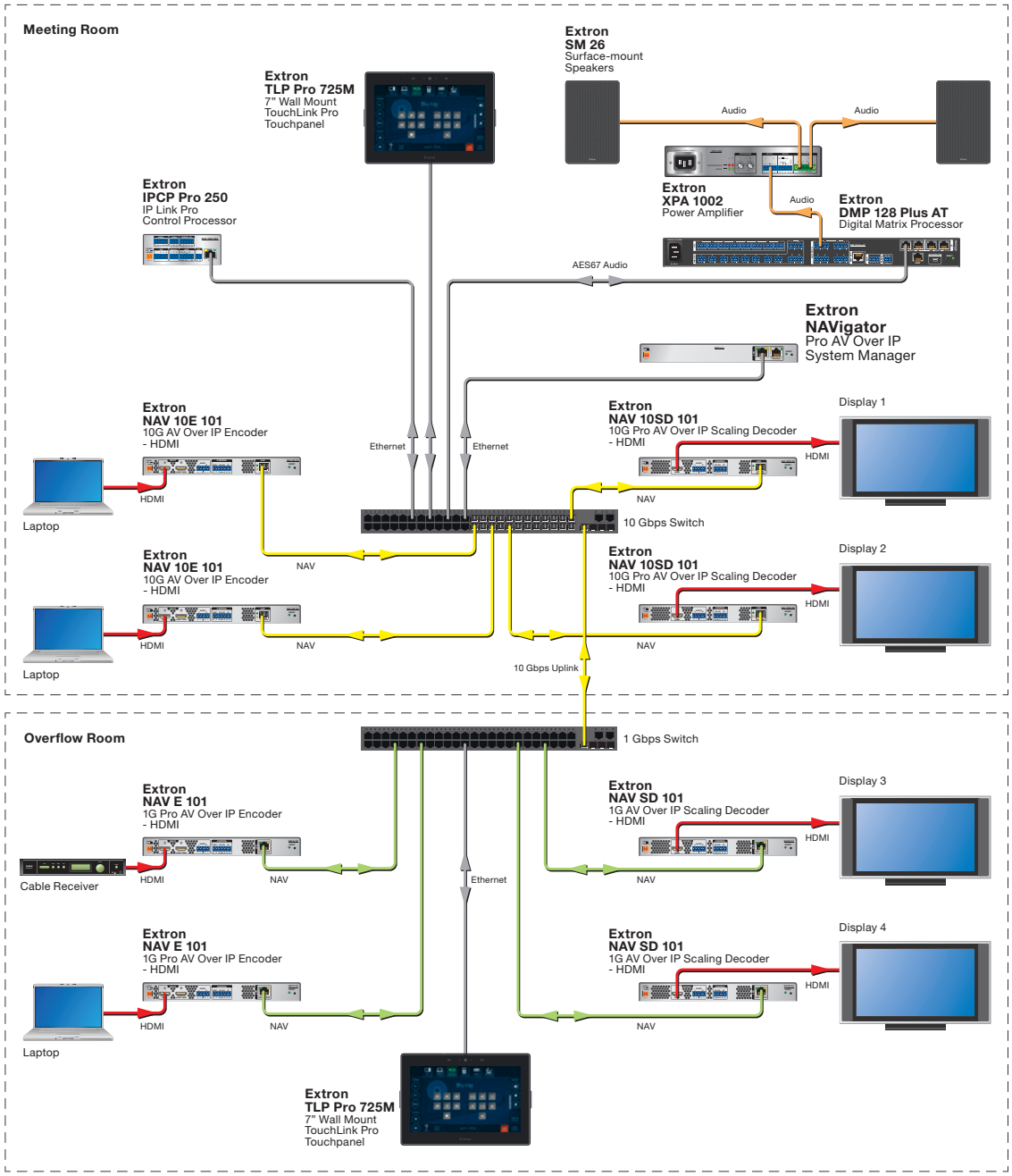
OPERATIONS CENTER WITH KVM WORKSTATION AND WINDOWALL

Four computers are each connected to a NAV E 511 encoder with HDMI, USB, Ethernet expansion, and a fiber interface. Four displays in a 1 X 4 array are each connected to a NAV SD 511 scaling decoder with HDMI, USB, Ethernet expansion, and a fiber interface to create a NAV WindoWall® videowall. A single display is connected to another NAV SD 511 Scaling Decoder as a standard KVM Operator. The Ethernet Expansion is used to interface the TLP Pro 725T Tabletop TouchLink Pro Touchpanel. A keyboard and mouse is connected to this NAV SD 501 USB, providing KVM workstation access to the four PCs. The TLP Pro 725T Tabletop TouchLink Pro Touchpanel along with an IPCP Pro 250 xi IP Link Pro Control Processor and NAVigator System Manager enable convenient and secure control of the WindoWall. The fiber interface of the NAV 511 series encoders and decoders provides additional range, noise immunity and security over copper Ethernet.



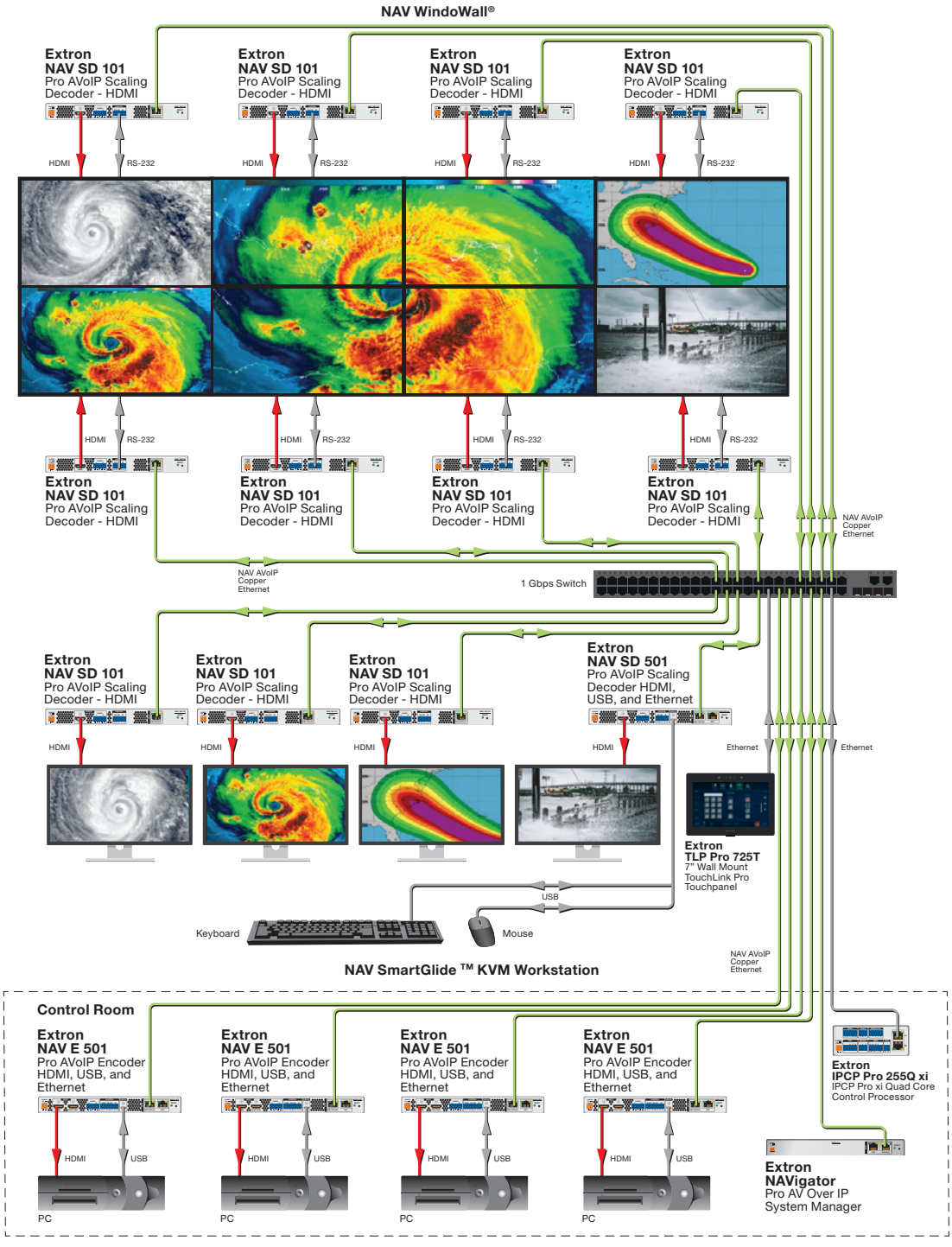
MEETING ROOMS WITH A MIXED 1G AND 10G INFRASTRUCTURE

In the meeting room, NAV devices run over a 10 Gbps IP network supporting lossless video performance with ultra-low latency. Here, two NAV 10E 101 encoders connect via HDMI to two laptops and two NAV 10SD 101 scaling decoders connect to two large displays. All NAV devices are managed by the NAVigator System Manager. Audio from NAV encoders is sent via AES67 to the DMP 128 Plus Digital Matrix Processor. An XPA 1002 amplifies the line level signal and sends it to SM 26 speakers. A 10 Gbps uplink connects the meeting room to the overflow room, where NAV devices run over a 1 Gbps network. Two NAV E 101 encoders connect via HDMI to a streaming receiver and a laptop, and two NAV SD 101 scaling decoders connect to two large displays. The streaming receiver connected to the 1 Gbps NAV E 101, can stream video back to either of the 10 Gbps NAV 10SD 101 scaling decoders for display in the meeting room. Conversely, the NAV 10E 101 can operate at 1 Gbps bandwidth to stream to either of the NAV SD 101 scaling decoders for display in the overflow room. The IPCP Pro 250 IP Link Pro control processor and a TLP Pro 725M Touchpanel in each room facilitate simple control of all signals.



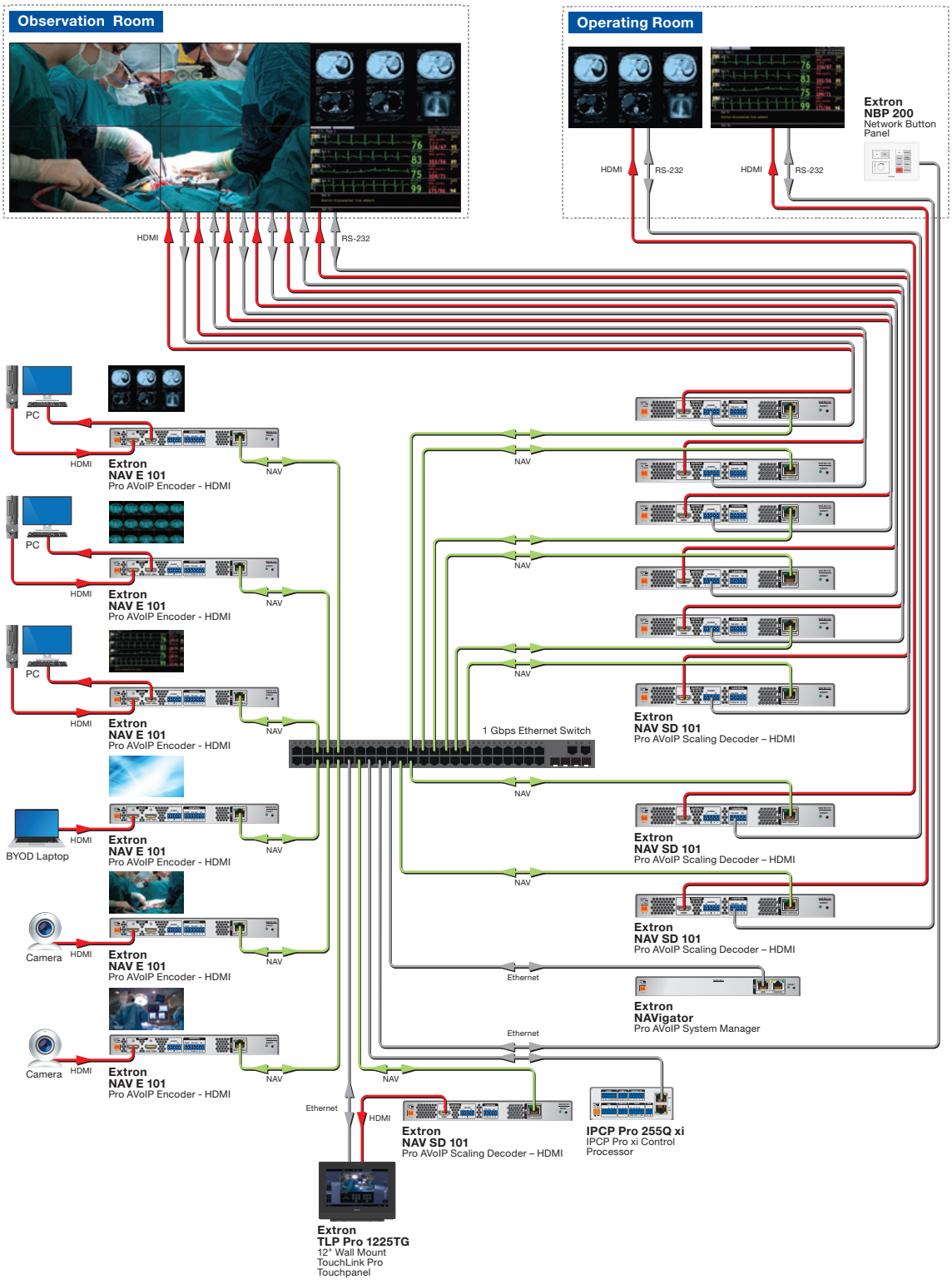
OPERATIONS CENTER WITH WINDOWALL AND SMARTGLIDE KVM WORKSTATION

An equipment room houses four racked computers, each connected to a NAV E 501 encoder with HDMI, USB, and Ethernet. Eight displays in a 2 X 4 array are each connected to NAV SD 101 scaling decoders to create a NAV WindoWall® videowall. Additionally, four displays in a 1 X 4 arrangement are each connected to a NAV scaling decoder forming a NAV SmartGlide™ KVM Workstation. A keyboard and mouse is connected to a NAV SD 501 scaling decoder with USB, as part of a NAV SmartGlide KVM – Keyboard, Video, and Mouse Workstation. Three NAV SD 101 scaling decoders are also connected as part of this 1 X 4 workstation. SmartGlide KVM switching enables automatic, fast KVM switching as the mouse glides from display to display with no noticeable latency. The optional SmartGlide KVM Focus can highlight the currently active display. A TLP Pro 725T Tabletop TouchLink Pro Touchpanel along with an IPCP Pro 255Q xi IP Link Pro Control Processor and a NAVigator System Manager enable convenient and secure control of the WindoWall.



SURGICAL TRAINING

The Control Room houses PCs connected via HDMI to NAV E 101 encoders that stream visually lossless images and data over an IP network. Other NAV E 101 encoders accept HDMI input from operating room cameras and a BYOD laptop. NAV SD 101 scaling decoders connect via HDMI to a 2 x 3 WindoWall® videowall in the observation room and displays in the operating room. An Extron TLP Pro 1225TG Wall Mount TouchLink Pro Touchpanel connects to a NAV SD 101 scaling decoder to preview sources and works with a IPCP Pro 255Q xi and a NAVigator System Manager to control and switch content to the operating room displays and the observation room WindoWall.



CERTIFICATION

Extron Network AV Specialist Program

The Extron Network AV Specialist - NAVS certification program prepares individuals to successfully deploy and troubleshoot networked AV systems using Extron NAV encoders, decoders, and software. Course participants will learn advanced techniques for streaming Pro AV over IP with an emphasis on low latency, bandwidth management, and signal quality. They will also learn to configure point-to-point and multipoint-to-multipoint networked AV systems and best practices for deploying Extron NAVigator, a hardware appliance for the secure management, configuration, and control of NAV Pro AV over IP systems. In addition, the Network AV Specialist program includes opportunities for hands-on experience with system configuration, validation, and troubleshooting.

Extron CERTIFIED Network AV Specialist

Extron Certification

In the highly competitive AV industry, education, training, and certification are important to both individual and corporate success. Like a professional license, certification instills customer confidence, providing formalized evidence of critical knowledge and skills. The fluency and expertise acquired through Extron Certification Programs save valuable time and expense, ensuring higher levels of customer service and satisfaction.

The Extron Network AV Specialist certification program is for AV professionals who wish to advance their knowledge of Pro AV over IP system technology, design, and configuration. This program features both online and instructor-led training components, providing system integrators, engineers, and consultants an opportunity to learn new skills, validate their existing skills, and gain a better understanding of the latest technologies and solutions in growing field of Pro AV over IP.

Course Content

The Extron Network AV Specialist program is a two-day course covering the following categories:

- Best practices for networked AV system design and deployment
- Understanding matrix switching and Pro AV over IP
- Configuration of point-to-point and multipoint-to-multipoint networked AV systems
- Overview of NAV Pro AV over IP encoders, decoders, and software
- When and how to deploy NAVigator Pro AV over IP System Manager
- Effective fault identification, troubleshooting, and commissioning of NAV systems

How Can I Get Started?

To request enrollment in the Network AV Specialist certification program, contact your Extron Support Representative or visit www.extron.com/training.

Continuing Education Units

The Extron Network AV Specialist certification program qualifies for Continuing Education Unit - CEU credits with a variety of established industry organizations, including AVIXA and BICSI. For more information, visit www.extron.com/training.

WORLDWIDE SALES OFFICES

Anaheim • Raleigh • Silicon Valley • Dallas • New York • Washington, DC • Toronto • Mexico City
Paris • London • Frankfurt • Amersfoort • Dubai • Tel Aviv • Sydney • Melbourne • Bangalore
Mumbai • New Delhi • Singapore • Seoul • Shanghai • Beijing • Hong Kong • Tokyo

www.extron.com

© 2023 Extron Electronics. All rights reserved. All trademarks mentioned are the property of their respective owners. Specifications subject to change without notice.

03-2023
68-3341-01
REV. B2
Letter - English - NP