

Specifications

NAV SD 511

TRUE 4K specification

Max. 4K Capabilities		
Resolution and Refresh Rate	Chroma Sampling	Max. Bit Depth per Color
4096 x 2160 at 60 Hz ¹	4:4:4	8 bit
3840 x 2160 at 60 Hz		
4096 x 2160 at 30 Hz		10 bit
3840 x 2160 at 30 Hz		
4096 x 2160 at 60 Hz	4:2:0	
3840 x 2160 at 60 Hz		

Frame rate² 24, 25, 30, 50, or 60 fps
 Chroma sampling² 4:4:4, 4:2:2, or 4:2:0
 Color bit depth² 8, or 10 bits per color
 Signal type DVI v 1.0, HDMI v1.4 and v2.0, HDCP v1.4 and v2.3
 Max. video data rate 18 Gbps (6 Gbps per color)

NOTE: ¹4096 x 2160 @ 50-60 Hz is available only for HDMI connectors.

NOTE: ²Subject to the maximum data rate limit. Use our calculator at www.extron.com/8Kdata to determine video parameters supported by this data rate.

Video input stream

Number/signal type 1 PURE3® digital video over IP
 Connector 1 SFP connector (SM or MM)

Video processing

Digital sampling 8 or 10 bits per color; 600 MHz pixel clock maximum
 Compression PURE3
 Latency <1 frame (encode/decode)

NOTE: Indicates minimum end-to-end latency. Network and video processing dependencies may apply.

Scaling Vector™

Video output

NOTE: Appropriate DVI-D to HDMI or DisplayPort to HDMI cables or adapters are required for DVI or DisplayPort signal output.

Number/signal type 1 digital HDMI video
 Connectors 1 female HDMI type A
 Resolution range Up to 4K (4096x2160 at 60 Hz) and UHD (3840x2160 at 60 Hz)

Specifications • NAV SD 511 (Continued)

Scaled resolution	640x480 ⁸ , 800x600 ⁸ , 1024x768 ⁸ , 1280x768 ⁸ , 1280x800 ⁸ , 1280x1024 ⁸ , 1360x768 ⁸ , 1366x768 ⁸ , 1400x1050 ⁸ , 1440x900 ⁸ , 1600x900 ⁸ , 1600x1200 ⁸ , 1680x1050 ⁸ , 1920x1200 ⁸ , 2048x1200 ⁸ , 2048x1536 ⁸ , bypass* 480p ^{7,8} , 576p ⁶ , 720p ^{3,4,5,6,7,8} , 1080p ^{1,2,3,4,5,6,7,8} , 2048x1080 (2K) ^{1,2,3,4,5,6,7,8} , 2560x1080 ⁸ , 2560x1440 ⁸ , 2560x1600 ⁸ , 3840x2160 ^{1,2,3,4,5,6,7,8} , 4096x2160 ^{1,2,3,4,5,6,7,8} ¹ = 23.98 Hz, ² = 24 Hz, ³ = 25 Hz, ⁴ = 29.97 Hz, ⁵ = 30 Hz, ⁶ = 50 Hz, ⁷ = 59.94 Hz, ⁸ = 60 Hz
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NOTE: When the output resolution is set to "bypass," the input signal is output without scaling.

Standards	DVI v1.0, HDMI v1.4/v2.0, HDCP v1.4/v2.3
Formats	RGB and YCbCr digital video

Audio

Gain.....	Analog to Analog: -6.5dBu balanced, -12.5 unbalanced HDMI to Analog: -5.3dBu balanced, -11.3 unbalanced
Frequency response	20 Hz to 20 kHz, ± 0.5 dB
THD + Noise	<0.1% @ 20 Hz to 20 kHz at nominal level
S/N.....	Analog to Digital: >90dB, 20 Hz to 20kHz, at Full scale output, unweighted Digital to Analog: >90dB, 20 Hz to 20kHz, at Maximum balanced output, unweighted Analog to Analog: >90dB, 20 Hz to 20kHz, at Maximum balanced output, unweighted
Crosstalk	≤ -80 dB @ 1 kHz, fully loaded
Stereo channel separation.....	>80 dB @ 1 kHz
Sampling rates.....	48 kHz
Bit depths	24 bit

Audio input stream

Number/signal type.....	1 audio over IP NAV (LPCM) or AES67
Connector.....	1 SFP connector (SM or MM)

Audio output

Number/signal type.....	1 analog stereo, unbalanced or balanced 1 digital stereo, de-embedded from HDMI
Connectors.....	(1) 3.5 mm captive screw connector, 5 pole 1 female HDMI (shared with video output)
Supported formats.....	LPCM (2 channel), analog stereo
Impedance.....	50 ohms unbalanced, 100 ohms balanced
Maximum level (Hi-Z).....	>+15 dBu balanced, +9 dBu unbalanced
Gain error.....	± 0.5 dB channel to channel
Gain range.....	Adjustable, -18 dB to +24 dB
Volume control range	-100 dB to 0 dB (control 0 to 100 in 1 dB steps)

NOTE: 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV \approx 2 dBu

Network interconnection (NAV)

Number/type.....	2 fiber optic
Connector type.....	1 SFP connector (SM or MM), supporting 2 LC fiber connectors
Ethernet standards	1GbE (802.3z), 1000 Base-LX (SFP) SM, 1000 Base-SX (SFP) MM
Termination	MDI (SFP)
Protocols	
Streaming.....	SRTP (AES-128) on video, audio, and USB
Transport.....	Multicast UDP
All supported.....	DHCP, HTTPS, IGMPv2/v3, IPv4, PTPv2, QoS, SSH, TCP, UDP
Security	AES-256, 802.1X, Active Directory authentication

Specifications • NAV SD 511 (Continued)

Signal transmission distance	
Singlemode	1000Base-LX (SFP) SM - up to 10km (6.25 miles)
Multimode	1000Base-SX (SFP) MM - up to 550m (1804 feet)
Nominal peak wavelength	850 nm for multimode, 1310 nm for singlemode
Transmission power	
Singlemode	TBD dBm, minimum
Multimode	TBD dBm, minimum
Maximum receiver sensitivity	
Singlemode	TBD dBm, maximum
Multimode	TBD dBm, maximum
Optical loss budget	
Singlemode	TBD dB, maximum
Multimode	TBD dB, maximum

Network extension (EXT)

Connector.....	1 RJ-45 female
Termination	Auto-MDIX, TIA/EIA T568B
Ethernet standards	1Gbps (802.3ab), 10/100/1000 Base-T, half/full duplex with autodetect
Signal transmission distance	330' (100 m) using CAT-5e/6/6a/7 cables

USB extension (USB)

Quantity/type	1 USB type-C port
Power	200 mA (max)
Configuration	Host or device (default)
Host support.....	xHCI (USB 3.0), EHCI (USB 2.0), OHCI/UHCI
Data rates	Low speed (1.5 Mbps), full speed (12 Mbps), high speed (480 Mbps)
Traffic types.....	Bulk, control, interrupt, and isochronous
Device usage	Min: 0 (host/per emulation off) Max: 2 (all emulation on)

NOTE: Hub usage is dependent on the system configuration.

Network switch hops	5 hops (typical)
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NOTE: Network switch hop limitations may apply. Typical limit is up to five network switches.

Communications - external devices

Serial	
Quantity/type.....	1 bidirectional RS-232
Connector	(1) 3.5 mm captive screw connector, 5 pole (shared with IR port)
Baud rate and protocol.....	300 to 115200 baud (9600 baud = default) 8 (default) or 7 data bits 1 (default) or 2 stop bits no parity (default), even or odd parity
Pin configuration.....	Tx, Rx, and Gnd
IR control	
Quantity/type.....	1 TTL level (0 to 5 V) infrared (carrier and non-carrier) up to 300 kHz
Connector	(1) 3.5 mm captive screw connector, 5 pole (shared with RS-232)
Pin configuration.....	S = signal and G = Gnd
IR output carrier frequency	30 kHz to 300 kHz
CEC control	1 HDMI type A connector
USB configuration port	
Quantity/type.....	1 front panel USB mini-B
Standard	Ethernet over USB

Specifications • NAV SD 511 (Continued)

General

Power supply	External Input: 100-240 VAC, 50-60 Hz Output: TBD
Power consumption	
Device	TBD watts nominal, TBD watts max.
Device and power supply	TBD watts nominal, TBD watts max.
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +104 °F (0 to +40 °C) / 10% to 85%, noncondensing
Cooling	Fan, air flows from top to rear
Thermal dissipation	
Device	TBD BTU/hr
Device and power supply	TBD BTU/hr
Mounting	
Rack mount.....	Yes, with optional rack shelf
Furniture mount	Yes, with optional under desk mounting kit
Enclosure type	Metal
Enclosure	1.00" H x 8.75" W x 6.00" D (half rack wide) (25 mm H x 222 mm W x 152 mm D)
Product weight	TBD lbs (TBD kg)
Regulatory compliance.....	CE, c-UL UL,C-tick, FCC Class A, ICES, VCCI, Complies with the appropriate requirements of RoHS, WEEE
Product warranty	3 years parts and labor
Everlast power supply warranty.....	7 years parts and labor

NOTE: All nominal levels are at $\pm 10\%$.

NOTE: Specifications are subject to change without notice.

NOTE: Shipping weights and dimensions are available at www.extron.com.

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