

## Specifications

### NAV 10SD 501

#### **TRUE 4K** specification – NAV 10SD Decoder

Max. 4K Capabilities		
Resolution and Refresh Rate	Chroma Sampling	Max. Bit Depth per Color
4096 x 2160 at 60 Hz <sup>1</sup>	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 rate<sup>2</sup> ..... 24, 25, 30, 50, or 60 fps  
 Chroma sampling<sup>2</sup> ..... 4:4:4, 4:2:2, or 4:2:0  
 Color bit depth<sup>2</sup> ..... 8, or 10 bits per color  
 Signal type ..... DVI v 1.0, HDMI v1.4 and v2.0, HDCP v1.4 and v2.2  
 Max. video data rate ..... 18 Gbps (6 Gbps per color)

**NOTE:** <sup>1</sup>4096 x 2160 @ 50-60 Hz is available only for HDMI connectors.

**NOTE:** <sup>2</sup>Subject to the maximum data rate limit. Use our calculator at [www.extron.com/4KdataRate](http://www.extron.com/4KdataRate) 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)

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Scaled resolution .....	640x480 <sup>8</sup> , 800x600 <sup>8</sup> , 1024x768 <sup>8</sup> , 1280x768 <sup>8</sup> , 1280x800 <sup>8</sup> , 1280x1024 <sup>8</sup> , 1360x768 <sup>8</sup> , 1366x768 <sup>8</sup> , 1400x1050 <sup>8</sup> , 1440x900 <sup>8</sup> , 1600x900 <sup>8</sup> , 1600x1200 <sup>8</sup> , 1680x1050 <sup>8</sup> , 1920x1200 <sup>8</sup> , 2048x1200 <sup>8</sup> , 2048x1536 <sup>8</sup> , 2056x1080 <sup>8</sup> , 2560x1440 <sup>8</sup> , 2560x1600 <sup>8</sup> , bypass*
	480p <sup>7,8</sup> , 576p <sup>6</sup> , 720p <sup>3,4,5,6,7,8</sup> , 1080p <sup>1,2,3,4,5,6,7,8</sup> , 2048x1080 (2K) <sup>1,2,3,4,5,6,7,8</sup>
	3840x2160 <sup>1,2,3,4,5,6,7,8</sup> , 4096x2160 <sup>1,2,3,4,5,6,7,8</sup>
	<sup>1</sup> = 23.98 Hz, <sup>2</sup> = 24 Hz, <sup>3</sup> = 25 Hz, <sup>4</sup> = 29.97 Hz, <sup>5</sup> = 30 Hz, <sup>6</sup> = 50 Hz, <sup>7</sup> = 59.94 Hz, <sup>8</sup> = 60 Hz

**NOTE:** When the output resolution is set to "bypass," the input signal is output without scaling.

Standards .....	DVI v1.0, HDMI v2.0, HDCP v1.4/v2.2
Formats .....	RGB and YCbCr digital video

### Audio

Gain .....	Unbalanced output: 0 dB, balanced output: +6 dB
Frequency response .....	20 Hz to 20 kHz, $\pm 0.5$ dB
THD + Noise .....	<0.1% @ 20 Hz to 20 kHz at nominal level
S/N .....	>90 dB, at maximum output, balanced (unweighted)
Crosstalk .....	$\leq -80$ 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 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) .....	>+12 dBV balanced, +6 dBV unbalanced
Gain error .....	$\pm 0.5$ 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/signal type .....	2 fiber optic
Connectors .....	(1) 10G SFP+ connector, 2 LC connectors
Termination .....	MDI (SFP+)
Ethernet standards .....	10 Gb Ethernet 802.3ae, 10GBase-LR (SFP+) SM, and 10GBase-SR (SFP+) MM
Protocols	
Streaming .....	SRTP (AES-128) on video and audio
Transport .....	Multicast UDP
All supported .....	DHCP, HTTPS, IGMPv2/v3, IPv4, PTPv2, QoS, SNMP (v2c), SSH, TCP, UDP, VLAN tagging
Security .....	AES-256, 802.1x, Active Directory authentication
Signal transmission distance	
Singlemode .....	10 km (6.25 miles) with singlemode (SM) cables with 10GBASE-LR (SFP+)
Multimode .....	400 m (1312') with 50/125 $\mu$ m OM4 cables with 10GBASE-SR (SFP+)

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**NOTE:** Operating distance is approximate. These are typical maximum distances that may vary depending on factors such as fiber type, fiber bandwidth, connector splicing, losses, modal or chromatic dispersion, environmental factors, and kinks.

Nominal peak wavelength .....	850 nm for multimode, 1310 nm for singlemode
Transmission power	
Singlemode .....	-5.2 dBm, minimum
Multimode .....	-3.3 dBm, minimum
Maximum receiver sensitivity	
Singlemode .....	-12.6 dBm, maximum
Multimode .....	-13.0 dBm, maximum
Optical loss budget	
Singlemode .....	7.4 dB, maximum
Multimode .....	9.7 dB, maximum

### Network extension (EXT)

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

### USB extension (USB)

Quantity/type .....	1 USB type-C port
Power .....	900 mA (max)
Configuration .....	Host or hub (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
Hub 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

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## 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 +122 °F (0 to +50 °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 .....	1.4 lbs (0.7 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](http://www.extron.com).

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