



Professional high definition AVoIP 4K encoder and decoder for HDMI, Audio, IR, RS232 & USB with POE



Features

4K 60Hz 4:4:4	HDMI V2.0b	EDID Management	18Gbps HDMI VIDEO	POE Remote power	1Gbps Ethernet	RS232 Full duplex & routing	AUDIO De/Embedding
HDCP V2.2	HDR 4K UHD	JPEG2000 COMPRESSION	SPS Preview channel	USB V1.1 & 2.0	IR Bi-dir & routing	AUDIO HD digital audio	

The VHX-EN7330 is a flexible and cost-effective Audio and Video over Internet Protocol (AVoIP) encoder for HDMI, audio, infrared, R232 and USB 1.1 / 2.0 signals. The units enable high definition HDMI signals up to 4K resolutions to be transmitted over a 100M of 1G Ethernet network with minimal latency and excellent visual quality.

Tech spec

- HDMI 2.0b
- 4K@60Hz, 4:4:4
- 18Gbps
- HDCP 2.2 compliant
- RS232 & IR
- 1G Ethernet
- JPEG 2000 compression
- Monitoring H.265 stream
- RS232 extension
- USB 1.1 & 2.0
- Video matrixing
- CEC compliant

Features

- Scalable
- Low latency
- Unicast & Multicast
- Point to point
- Video matrixing
- Mounting brackets
- HD digital audio
- Near unlimited distance
- Video Wall 9x9 feature
- Secure DC connection
- POE - switch powered
- Compact metal box

Description

The VHX-EN7330 encoder allows the connected HDMI video to be compressed into 2 independent IP streams. The primary JPEG 2000 stream provides a very high quality video and audio transmission with less than a frame duration latency whilst the secondary H.265 stream can be used for monitoring via standard software or third party applications. The VHX-EN7330 can accept HDMI signals up to 4K resolutions and up to 60Hz frame rate.

Video streaming is compatible with a standard 1G Ethernet IGMP switcher using the Unicast and Multicast protocols. Point to point, point to multipoint and matrix switching can be achieved easily using industry standard Ethernet switchers and installation enhanced with the POE feature. A USB host connection allows a connected computer to extend both USB V1.1 and V2.0 signal to a VHX-DC7330 decoder which can provide the facility for up to 5 peripherals to be added. Other control signals can also be transmitted over the same network which can be used for RS232, infrared and CEC signals.

The VHX-EN7330 together with the decoder VHX-DC7330 provide a highly scalable and cost-effective solution for distributing HD video and control signals for a multitude of applications. Video walls can also be created with multiple decoders up to a 9x9 system.





Professional high definition AVoIP 4K encoder and decoder for HDMI, Audio, IR, RS232 & USB with POE



Features

4K 30Hz 4:4:4	HDMI V2.0b	EDID Management	18Gbps HDMI VIDEO	POE Remote power	1Gbps Ethernet	RS232 Full duplex & routing	AUDIO De/Embedding
HDCP V2.2	HDR 4K UHD	JPEG2000 COMPRESSION	SPS Preview channel	USB V1.1 & 2.0	IR Bi-dir & routing	AUDIO HD digital audio	

The VHX-DC7330 is a flexible and cost-effective Audio and Video over Internet Protocol (AVoIP) decoder for HDMI, audio, infrared, R232 and USB 1.1 / 2.0 signals. The units enable high definition HDMI signals up to 4K resolutions to be received over a 1G Ethernet network with minimal latency and excellent visual quality.

Tech spec

- HDMI 2.0b
- 4K@30Hz, 4:4:4
- 18Gbps
- HDCP 2.2 compliant
- RS232 & IR
- 1G Ethernet
- JPEG 2000 compression
- Monitoring H.265 stream
- RS232 extension
- USB 1.1 & 2.0
- Video matrixing
- CEC compliant

Features

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Description

The VHX-DC7330 decoder provides the interface and conversion between the IP stream present on the Ethernet network and the HDMI and control signal outputs. The VHX-DC7330 is able to convert the compressed JPEG 2000 stream back to the original HDMI signal and output it as a 4K resolution video up to 30Hz frame rate. The unit also has an output scaler enabling the video to be adjusted to the native resolution of the connected display.

Video streaming is compatible with a standard 1G Ethernet IGMP switcher using the Unicast and Multicast protocols. Point to point, point to multipoint and matrix switching can be achieved easily using industry standard Ethernet switchers and installation enhanced with the POE feature. Four USB peripheral connections allow for 2 x USB V1.1 devices (keyboard and mouse) and 2 x USB V2.0 devices (external hard disks and flash drives). Each port also provides a charging/powering 5V at 500mA. Other control signals can also be transmitted over the same network and can be used for RS232, infrared and CEC signals.

The VHX-DC7330 together with the encoder VHX-EN7330 provide a highly scalable and cost-effective solution for distributing HD video and control signals for a multitude of applications. Video walls can also be created with multiple decoders up to a 9x9 system.





Technical Specification

Video - Digital

Connectors	1 x HDMI (Type A) input/output VHX-EN7330 1 x HDMI (Type A) output VHX-DC7330
Signal type	HDMI - TMDS
Standards	HDMI 2.0b. HDCP 2.2
Compression standard	JPEG 2000/H.265
Maximum data rate	4.5Gbps per colour
Maximum pixel clock	300MHz
Resolution range - DTV	Max 3840x2160 @60Hz EN7330, @30Hz DC7330
Resolution range - PC	Max 1920x1200 @60Hz EN7330, @30Hz DC7330
Frame rate	24, 25, 30, 50 & 60 Hz
Gain	0 dB
Formats	RGB and YCrCb
Colour space	4:4:4, 4:2:2 & 4:2:0
Colour depth	Input: 8-bit, 10-bit, 12-bit (1080p@60Hz) Output: 8-bit
Clock jitter	<0.15T bit
Rise time	<0.3T bit (20-80%)
Fall time	<0.3T bit (20-80%)
Maximum transmission delay	5ns (+/- 1ns)
Signal strength	TMDS +/- 0.4V pk-pk
TMDS signal level	2.9V - 3.3V
Impedance	50R
Maximum DC offset	15mV
Maximum input cable length	15m 24 AWG
Maximum output cable length	15m 24 AWG

Audio - Digital

Standards	Embedded in HDMI - LPCM 2CH 32/44.1/48KHz
Maximum audio channels	8
Maximum sample rate per channel	192 kHz
Sample size	16-24 bits

Audio - Analogue

Standards	Stereo - unbalanced
Bandwidth	20 - 20 kHz
Connector	3 pin phoenix

Power

POE	802.3af Class 3, PD mode
Optional DC Voltage	External 12V/1A PSU
DC connector	2.1mm jack with screw fitting
AC Voltage (External Supply)	100-230 VAC
AC frequency (External Supply)	50/60 Hz
Power consumption	<8W encoder and <4W decoder
Operating temperature	(-10) to 45 degrees C
Storage temperature	(-20) to (-60) degrees C
Relative humidity	20 to 90% RH (no condensing)
Dimensions	205 x 100 x 21.5mm
Product weight	0.5Kg
MTBF	30,000 hours

Control - USB

Connector	USB type B (encoder) type A (decoder)
Signal type	USB - half duplex
Standards	USB 1.1 & 2.0
Maximum datarate USB 1.1	12 Mbits/s
Maximum datarate USB 2.0	480 Mbits/s
USB signal level	0-3V3 logic zero or one
Impedance	100R

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Technical Specification (cont)

Control - RS232

Connector	3pin Phoenix
Signal type	Full duplex
Signal level	+/- 5V
Baud rate	Up to 115200
Data bits	8
Stop bits	1
Parity	None
Pinout	1-RX, 2-0V, 3-TX

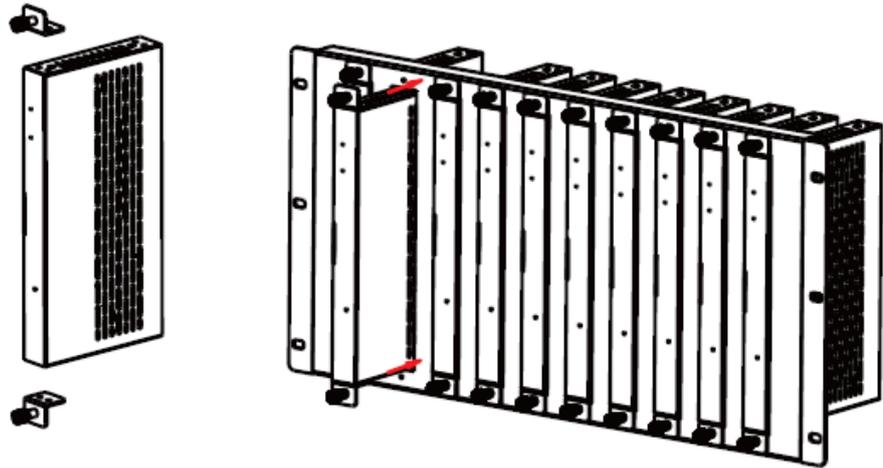
Control - IR

Connector	3.5mm mini-jack socket
Signal type	Full duplex (via 2 connections)
Signal bandwidth	20-60KHz

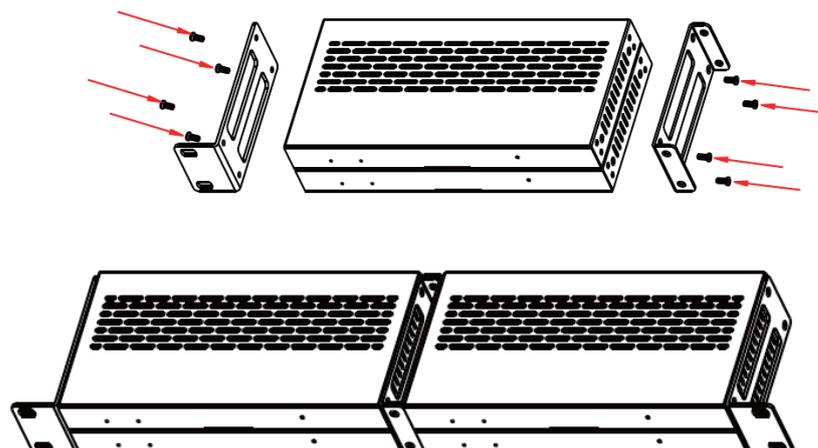
Cat cable connectivity

Number of cables	4 x Cat 5e/6 screened twisted pair cables
Connectors	4 x female screened RJ45 connectors per unit
Termination standard	TIA/EIA T568B
Cable requirements	Solid conductor, 24 AWG or better
Cable recommendations	400 MHz bandwidth STP (shielded twisted pair)
Transmission distance	100m 1GE Ethernet

Rack mounting kit x 10 (6U)



Rack mounting kit x 4 (1U)



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VHX-EN7330 – panel drawing

The VHX-EN7330 encoder has all the connectors on the rear face. This method allows for convenient connection to the various input and output signals whilst maintaining a compact robust casing.

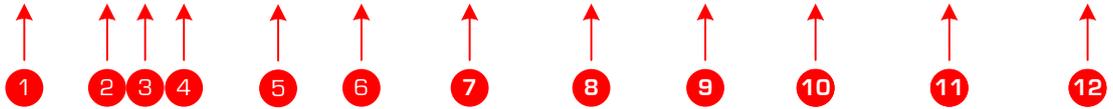
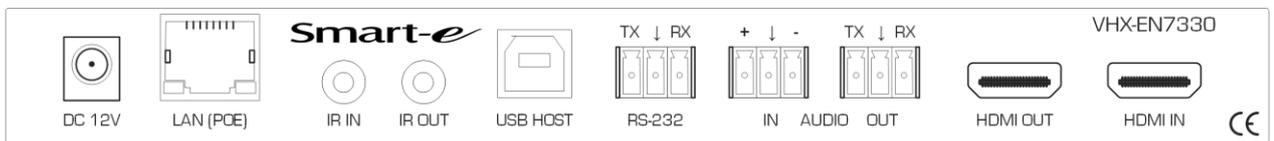
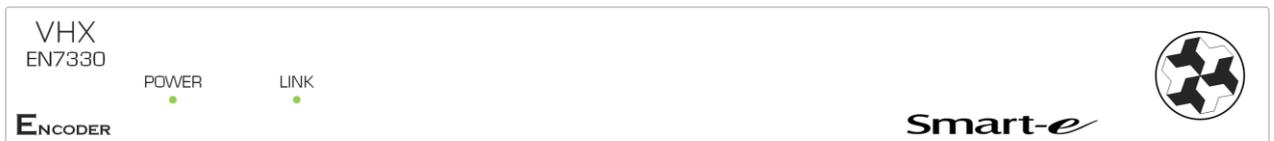


VHX-EN7330 - connectivity

Connection to the VHX-EN7330 are via industry standard connectors where appropriate for HDMI, USB, IR and power. Analogue audio and RS232 signals can be linked via standard Phoenix 2-part connectors (mating parts are included in box). The Infrared signals are accessed via external cable ended receivers and emitters also supplied in the box.



13	Power LED	Power on status - red
14	Network LED	Network status - green



1	DC	12V local PSU (optional)	7	USB HOST	USB connection to PC
2	Data LED	Flashing data status - yellow	8	RS232	RS23 full duplex connection
3	RJ45	100m/1G network connection	9	AUDIO IN	Stereo analogue audio i/p
4	Link LED	Network link - green	10	AUDIO OUT	Stereo analogue audio o/p
5	IR IN	Infrared input via receiver	11	HDMI OUT	HDMI looping output
6	IR OUT	Infrared output via emitter	12	HDMI IN	HDMI input

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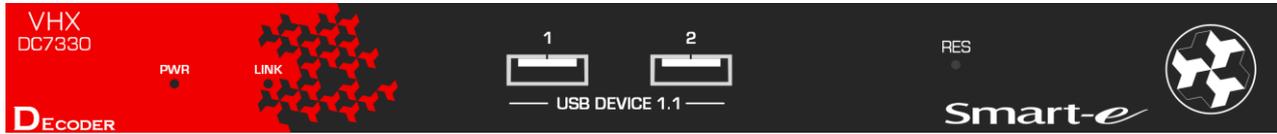
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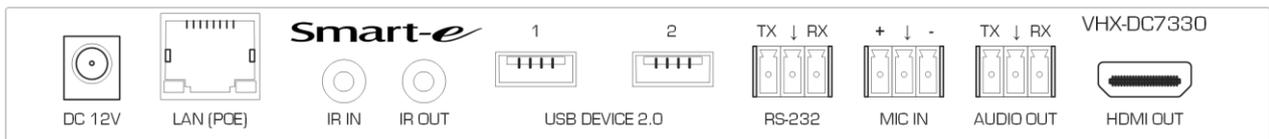
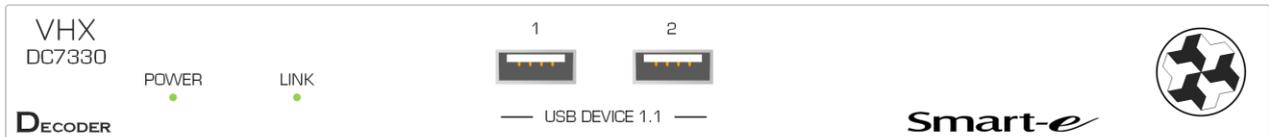
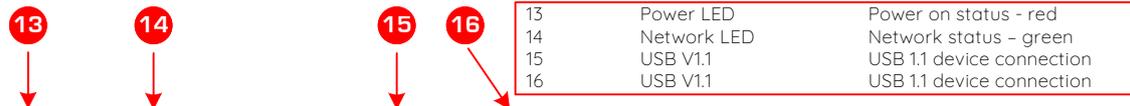
VHX-DC7330 – panel drawing

The VHX-DC7330 decoder has all the connectors on the front and rear faces. This method allows for convenient connection to the various input and output signals whilst maintaining a compact robust casing.



VHX-DC7330 - connectivity

Connection to the VHX-DC7330 are via industry standard connectors where appropriate for HDMI, USB, IR and power. Analogue audio and RS232 signals can be linked via standard Phoenix 2-part connectors (mating parts are included in box). The Infrared signals are accessed via external cable ended receivers and emitters also supplied in the box.



1	DC	12V local PSU (optional)
2	Data LED	Flashing data status - yellow
3	RJ45	100m/1G network connection
4	Link LED	Network link - green
5	IR IN	Infrared input via receiver
6	IR OUT	Infrared output via emitter

7	USB V2.0	USB 2.0 device connection
8	USB V2.0	USB 2.0 device connection
9	RS232	RS23 full duplex connection
10	MIC IN	Microphone input
11	AUDIO OUT	Stereo analogue audio o/p
12	HDMI OUT	HDMI looping output

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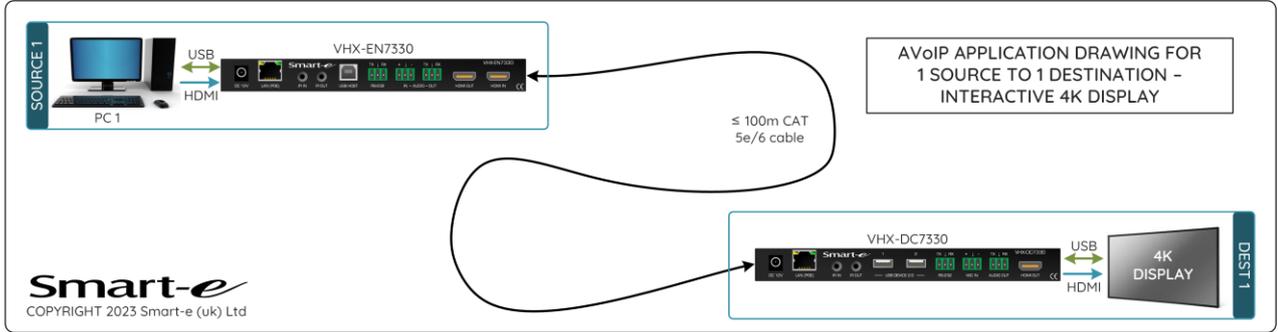
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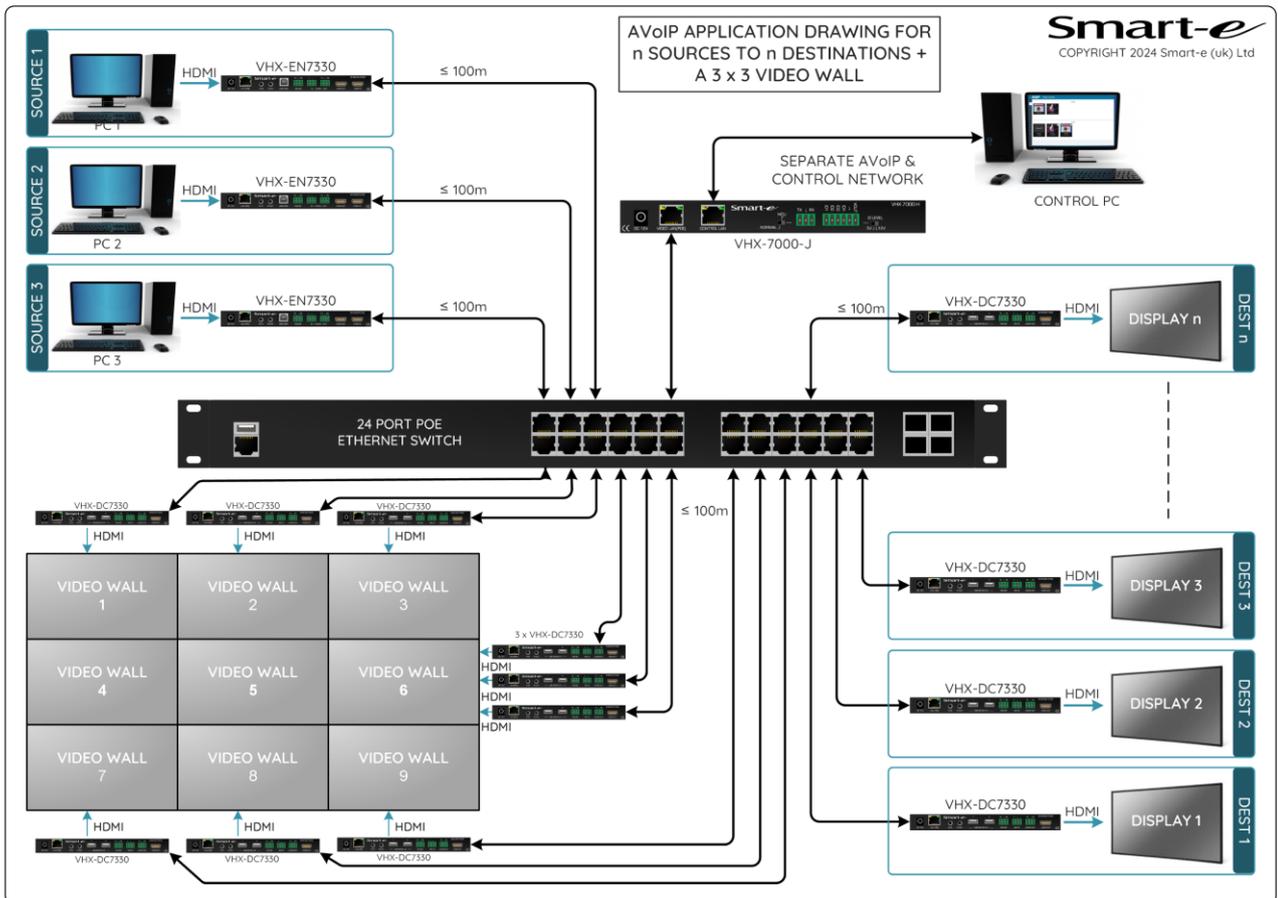
Application drawing – point to point

The VHX-EN7330 encoder and VHX-DC7330 decoder can be used in a simple extension scenario as seen below. This method does not require a network switch and the two units are simply connected together with a single Cat 6 or Fibre cable. In this mode all features are enabled and can be used as required.



Application drawing – multicasting

When multiple encoders and decoders are required, the system needs to be connected as a multicasting solution. There are several ways to achieve this but the recommended method is seen below (other methods are detailed in the User Manual). In the scenario below a Video LAN is created separated from any existing company LAN/WAN. The VHX-7000-J Controller acts as the DHCP server whilst also isolating the Video LAN improving security and preventing data flooding of the existing network. The Controller also provides a web based interface for configuring and setup and an API allowing control via third party systems.



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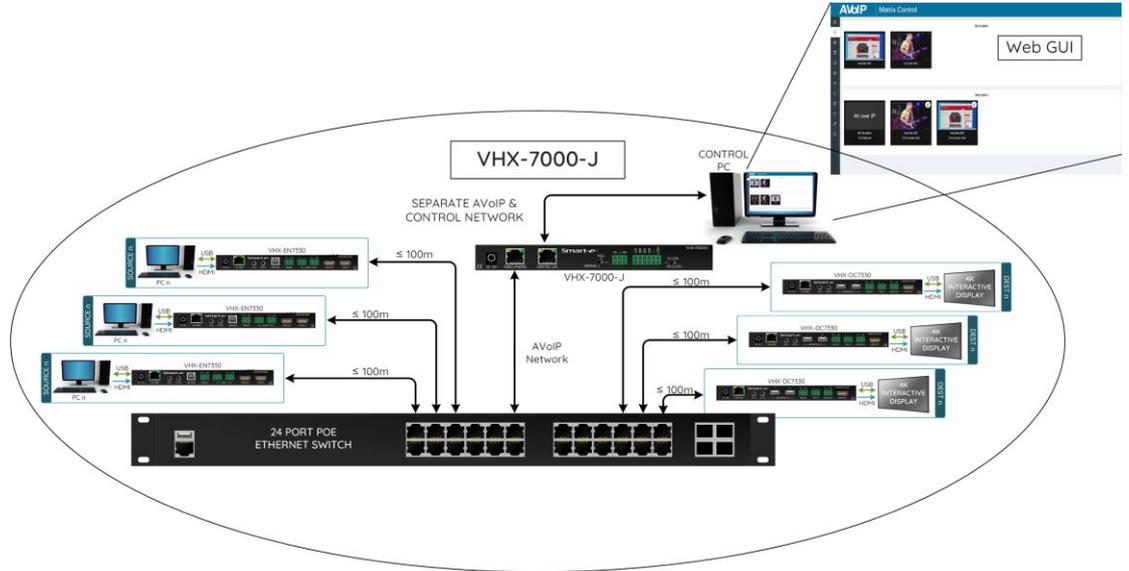
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Controller – VHX-7000-J

The VHX-7000-J controller allows the user to control and manage JPEG 2000 IP streams within an Ethernet network environment; this is achieved through a convenient internal Web GUI. The unit also provides the necessary network isolation between the Multicast video system and any existing network infrastructure (more detailed information is available in the VHX-7000-J User Manual).



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