



H.264 Encoder – **Firmware 6.5.2.1**

General Description

Vicon has released its new H.264 encoder. This encoder is replacing the current KTX-4 encoder.

The new encoder offers a modern, standards based edge device for analog cameras encoding.

Features and Functions

The H264-ENCDR Network Encoder is a 4-channel digital video server that converts analog camera inputs into streamed IP video data. This embedded device is specifically designed to integrate into the ViconNet Video Management System (VMS). The tight integration into ViconNet provides advanced features, such as museum search, analytics, dynamic load balancing and automatic detection in the ViconNet VMS. It offers full support of NTSC/EIA and PAL/CCIR video cameras.

The following features are included with the H.264 encoder:

- Up to 4 analog camera video input
- Auto-sense NTSC or PAL video system
- H.264 video compression only (ViconNet compression is not supported by this encoder)
- Maximum video transmission rate up to 120 fps (100 fps PAL) on all channels at 4CIF or D1 resolution
- Dual streaming supported
- 4 alarm inputs and 4 relay outputs
- 4 microphone inputs (line level)
- Powered by PoE or 24 VAC external power supply
- Scalable to allow adding units to handle any number of cameras

Vicon Release Notes

ViconNet version compatibility

The H.264 encoder is only compatible with ViconNet version 6.5 (build 59) and above. It will not work with older ViconNet versions nor does it support older ViconNet compression.

Added functionality compared to KTX-4

Feature Name	Product Support	
	KTX-4 (old)	H.264 Encoder (new)
Network Settings	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Site Authorization	<input checked="" type="checkbox"/> Support 20 groups and 100 users	<input checked="" type="checkbox"/> Support up to 500 groups and 500 users total
Backup / Restore Settings	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Device Settings	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Alarms	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Quality & FPS Priority	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Video Compression	<input checked="" type="checkbox"/> ViconNet only	<input checked="" type="checkbox"/> H.264 only
Dual Streaming	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Settings Summary	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Streaming Methods TCP / UDP / Multicast	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Reports	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Picture Settings	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PTZ Control	<input checked="" type="checkbox"/> single output	<input checked="" type="checkbox"/> 4 output IDL
Microphones	<input checked="" type="checkbox"/> 2 audio input	<input checked="" type="checkbox"/> 4 audio input
Relays	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 4 relays
Concurrent client support	10 max	Unlimited (see product limitations section)

Vicon Release Notes

Installation and Configuration

Like other ViconNet based encoders (VN-301T and KTX-4) and IP cameras (Surveyor, V910PoE) the H.264 encoder is also using VNSetup as its discovery and configuration tool.

This allows discovery of the encoder out of the box regardless of its IP settings, as well as initial configuration of the IP parameters, Nucleus and transmission method. For a detailed explanation on VNSetup and the optional configurations, refer to the encoder manual.

The firmware file is now included with "IP products 534" installation package on the CD/DVD and online.

Mounting options

The H.264 encoder comes in the same form factor as the KTX-4 and fits into the same 2-unit rack and wall mounting solutions; additionally, a card cage that mounts up to 8 units vertically in a 5U 19-in. rack is also available, model H264-ENCDR-CC. See datasheet for detail.

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Product performance and limitations

The encoder is capable of handling multiple clients at the same time in Unicast (UDP or TCP) mode. However, the overall performance is affected by several parameters that need to be taken under consideration:

- Video motion pattern – how much motion is in the video (for example Casino Vs. office)
- Expected FPS – how many frames per second are required from each camera
- Resolution – what resolution is needed for each camera
- Bandwidth – what bandwidth is required per stream

The higher the requirements are, the more processing power is required from the encoder and the maximum number of streams (concurrent) it will provide before fps will start slowing down.

In any case the encoder will keep providing video to the clients but slowly reduce fps to ensure stable operation and ongoing service.

The following table shows an estimate of the expected number of streams (**at D1 and 30fps**) the encoder can support before reducing fps.

Transmission Method	Low Motion	Medium Motion	High Motion
TCP	16	12	8
UDP	20	16	12
Multicast*	Unlimited	Unlimited	Unlimited

Note! These are total number of streams not users. For example, 16 streams can be used by a NVR recording all 4 cameras (4 streams) and in parallel, 3 users watching all 4 cameras (12 more streams). Or a NVR recording all 4 cameras (4 streams) and in parallel 12 users watching one of the cameras each (12 streams).

Pay close attention to the concurrent streams requirements when designing a system to ensure you maximize the performance and capabilities of the encoder.

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Display performance

When displaying video from the H.264 encoder, the same limitation on the total number of displayed cameras applies both for a workstation and VMDC.

When displaying a D1 resolution stream at 30 fps, a workstation (based on the current Vicon spec) will be able to display up to 16 cameras. If a VMDC is used for display, the maximum number of cameras before overloading the system is up to 20.

This numbers are in line with the Kollector or V960 cameras configured with the same parameters.

Known issues

Multicast not supported

With this release firmware (6.5.2.1 and ViconNet 6.5) Multicast is not supported, this will be corrected in ViconNet version 6.6

Telnet Access

The H.264 encoder enables Telnet access without password. This means that if someone knows the Telnet user name, he can access the H.264 Encoder and restart it from remote.

User Vs. Macro priority on PTZ

The H.264 encoder distinguishes the user's priority and ignores the macro priority. In case that a macro created by an Admin is initialized, a user with a lower user priority will not be able to control the PTZ.

Initial System Type Detection

NTSC format detection after a factory default displays a couple of horizontal pink lines from the bottom of the screen. This issue is fixed on the next reboot.

Momentarily horizontal lines

In cases where the system initialized without any device attached, a couple of momentarily horizontal lines may appear on screen. This issue may occur due to incorrect encoder detection causing lines to be skipped and fixed on the next reboot when cameras connected and the unit being powered up.

Multicast streaming

Using multicast as a streaming method requires physical connection of **all four cameras**. In cases where one of the cameras will be disconnected, all channels will reduce FPS. This issue will be fixed upon cameras reconnection.

Vicon Release Notes

Time sync leading to unit reboot

In case the H.264 encoder current time needs to be synched, whereas the time difference equals or exceeds two weeks, the system will reboot itself to prevent further potential time drifts.

Network settings User notification

When changing the H.264 encoder IP address from VNSetup, although the correct IP is assigned and the unit has restarted, a "failed to get a reply from unit" message displayed.

DNS not supported

Although both primary and secondary DNS IP addresses are saved when using VNSetup, the unit cannot currently set the site name value through ViconNet. Therefore; DNS is currently unsupported

Audio interruption

When a video input is disconnected from the H.264 encoder, the audio on the same channel (1-4) will be also cut off. Audio will continue when video is reconnected and audio reselected.