E5100 • Encoder | D5100 • Decoder

Distribute 4K60 4:4:4 Video and Audio over Gigabit Ethernet

Overview

Visionary Solutions proudly presents the next-generation E/D5100 AV over IP endpoints, designed to meet the growing demand for 4K video in converged AV/IT environments. Building on the success of our PoE 4K UHD over IP cinema-quality, ultra-low latency (sub-frame visually lossless) encoders and decoders, the E/D5100 series now supports 4K60 4:4:4 video for enhanced visual fidelity.

These advanced endpoints bypass the limitations of traditional switch matrix distribution systems by harnessing the flexibility and scalability of converged IP networks. Professional AV designers and IT directors choose Visionary Solutions' products as a cutting-edge alternative to conventional distribution systems.

The E/D5100 AV over IP endpoints can be deployed on any industry-standard IP network, offering seamless integration with existing enterprise IP networks or separate parallel private networks. This flexibility allows for efficient installation without

D-5100 • Decoder

E-5100 • Encoder

intermingling video traffic with data or voice, ensuring optimal network performance and stability.

Upgrade your AV installations with Visionary Solutions' next-generation E/D5100 4K60 4:4:4 capable AV over IP endpoints and experience the future of AV distribution.

Features

Gigabit LAN Port for 4K UHD 4:4:4 Video, Control, and Powered Device (PD)

- A single Ethernet port for AV over IP, KVM over IP, USB over IP and RS-232 over IP, and POE Power Input

HDMI loop-through (Encoder)

- Single HDMI loop-through

Independent Routing

- Independently route all signals with the ability to separately matrix video, audio, and USB.

Isochronous USB 2.0 over IP

- Enables real-time data transfer for USB devices, such as webcams and microphones, over the network. This feature simplifies the deployment of video conferencing solutions and offers greater flexibility in AV system design. By leveraging the AV over IP infrastructure, it allows seamless integration and extension of USB peripherals.

Native AES67 Audio Support

- Seamlessly integrates with AES67 audio networks, enabling high-quality, low-latency audio transmission over IP. Ensures full interoperability with other AES67-compliant devices for professional audio applications.

Dynamically Optimized (Adaptive) bit-rate compression CODEC w/ built-in AI

- Visionary's highly efficient video compression codec is a modified full frame encoding that dynamically optimizes for fine lines (computer generated graphics) or motion video by using sophisticated AI to analyze the input source content. Actively matching the level of compression to a scene by leveraging periods of low motion video content reduces the stream's size and enhances performance - enabling, without compromising image quality, Visually Lossless transmission of computer generated graphics or full-motion video sources.

- Adjustable Video Bitrate: (50 – 200 Mbps or Auto [800Mbps max])

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Features cont.

Enterprise Level Security –AES Encryption, 802.1x, HTTPS, SSH

Enterprise applications demand a secure Network

- AES Stream Encryption - The Advanced Encryption Standard, or AES, is a worldwide standard and was adopted as the standard encryption algorithm by the U.S. government for encrypting classified information
- HTTPS Secure API - Using secure SSL/TLS communications HTTPS provides integrity that a client is communicating with the real API and receiving back authentic data.
- 802.1x Authentication for Network access control -
- SSH Network Protocol - SSH is a network protocol used to remotely access and manage a device through command line communications.

Auto Video Scaler

- No need to worry about configuring the source resolution
- 4K in/1080P out, 1080P in/4K out

USB 2.0 over IP (KVM), RS-232 over IP, and CEC over IP

- Control practically any remotely located device using USB devices and interfaces
- Also supports KVM over IP
- Control any device with an RS-232 interface
- HDMI CEC signal extension over IP

4K60 4:4:4 Video Support

- Experience ultra-high-definition video with 4K resolution at 60 frames per second and full 4:4:4 color sampling for unparalleled image quality, suitable for professional applications where every detail matters.

Built in Video Wall Functions

- A Single platform to support distributed displays and Video Walls; without expensive video wall processors
- Enhanced Video Wall functionality – supports video rotation 180/270 degrees
- Easily create video walls using normal commodity displays
- Built-in video wall processor that allows you to build up to a 16×16 video wall

GPIO - 1x1 I/O User Configurable

- Control third party devices from any endpoint on the network

Dynamic OSD text overlay capabilities

- The ability to overlay dynamic or fixed text on screen enables displaying of alerts, announcements, special instructions, clocks / timers, schedules, and other messaging

Mass Configuration

- Auto Discover all endpoints on the network, export to .CSV file (all configurable parameters included), make changes offline, upload .CSV file through embedded web page of encoder/decoder and push configuration to the network
- No external software required – mass configuration capabilities built into the endpoint embeddedwebpage UI

LLDP Support

- Link Layer Discovery Protocol (LLDP) is a protocol used by network devices for advertising their identity, capabilities, and neighbors on a local area network based on IEEE 802 technology
- Allows for dynamic control of endpoints based on automatic discovery of physical location

QoS Support

- Quality of Service (QoS) is an advanced feature that prioritizes network traffic resulting in performance improvement for critical network traffic

Control

- Vision Lite Control Software
- 3rd Party Control Drivers [Crestron, QSC, Symetrix, RTI, etc.]
- *API providing access to the full range of features on the encoders and decoders offered to qualified System Integrators

KVM Multi Display Roaming

- Switch keyboard d mouse control automatically and seamlessly between PC's by moving the cursor across the boundaries of a display and 'roaming' to adjacently mapped displays.

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Features cont.

Full Motion MJPEG Substream

- Maximize bandwidth efficiency and enhance video quality with a full motion MJPEG substream, delivering smooth, high-quality video feeds for preview or monitoring purposes without impacting the primary 4K60 4:4:4 video stream.
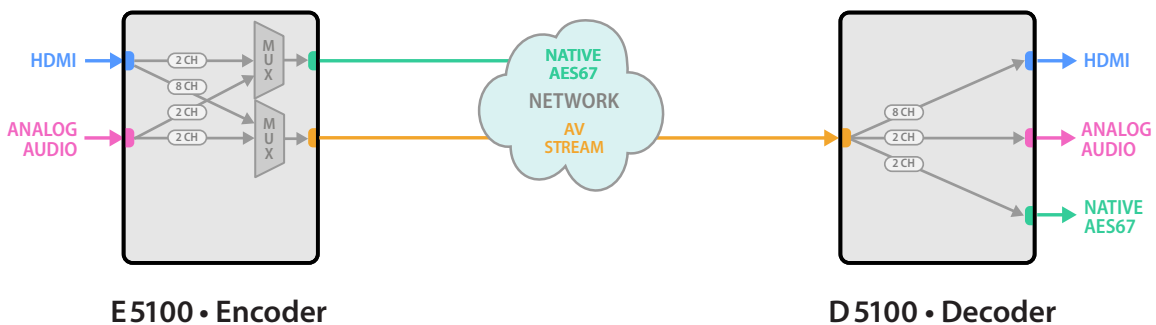
Seamless Fast Switching

- Tearing free, no black screen, no frame lock

HDMI 2.0 and HDCP 2.2, 2.3 Compliant

Benefits

- A single Gigabit LAN Port for PoE Power, 4K60 4:4:4: Video, Audio, and Control

- Easy Control Integration

- Ultra-low Latency [Sub-frame ~2ms visually lossless]

- Low bitrates

- No fiber or 10 Gigabit switch required

- Low-Cost network switches are used

- Scalable / Unlimited Distribution

- Any number and combination of inputs/outputs [in increments of one]

- Standard network cabling [CAT5e/6]

- Utilize existing network resources

- Rapid deployment

- Single network for AV and IT

- Reduced operating costs

Audio Workflow

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| LAN POE | HDMI IN | HDMI LOOP | PWR LINK | RS-232 | AUDIO INPUT | USB |
| LAN POE | HDMI OUT | PWR LINK | RS-232A | AUDIO OUT | USB USB |

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Specifications

Encoding/Decoding	
Video Codec	JPEG2000 based visually lossless video compression algorithm
Audio Codec	LPCM, AES67
Bit Rates	50 to 800 Mbps
Latency	Ultra-Low Latency Sub-Frame (visually lossless video) ~2ms @ 1080p60 & 4K60 4:4:4 ~4ms @ 1080p30 & 4K30
Streaming Protocols	IP, UDP, TCP, ICMP, IGMP
Copy Protection	HDCP 2.2, 2.3 AES-256 Encryption

Video	
Maximum Resolutions	High Dynamic Range (HDR) 4K60 4:4:4 HDR 8 bit 4K30 4:4:4 HDR 12 bit 1080p60 4:4:4 HDR 12 bit 1080p30 4:4:4 HDR 12 bit Supports HDR10, HDR10+, HLG, Dolby Vision
Input Signal Types (Encoder)	HDMI (with Loop Out) capable of receiving source input video formats up to 4K60 4:4:4
Output Signal Types	Decoder: 1x HDMI capable of scaling and outputting video formats up to 4K60 4:4:4 Encoder: (HDMI Loop Out) capable of outputting video formats up to 4K60 4:4:4
Scaler (Decoder)	Supports a wide range of resolutions and rates, up to 4K in/1080P out, 1080P in/4K out, image rotation, and video wall up to 16x16 Integrated scaling helps optimize image quality and switching performance

Audio	
Input Signal Types	HDMI Audio, Analog Stereo Audio. • 1 Analog stereo input, unbalanced or balanced • 1 Digital input de-embedded from HDMI
Output Signal Types	HDMI Digital Audio (NLPCM pass-through), Analog Stereo Audio, Native AES67 Network Audio • 1 Digital audio output via HDMI • 1 Analog Stereo Audio balanced output • 1 Native AES67 digital audio output (up to 2 channels)
Digital Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby True HD, Dolby Atmos, DTS ®, DTS-ES, DTS96/24, DTS-HD High Res, DTS-HD Master A udio, DTS:X, LPCM up to 8 channels.
Analog Formats	Stereo 2-channel
Analog-To-Digital Conversion	24-bit 48 kHz
Digital-To-Analog Conversion	24-bit 48 kHz
Native AES67	24-bit 48kHz
Analog Output Volume Adjustment	-80 to +20 dB

Communication & Control of External Devices	
Ethernet	Network connectivity for control and AV traffic
USB	USB 2.0 host or device signal extension and routing
Serial / RS-232	Bi-directional device control and monitoring
GPIO	For extension and control of third-party devices
HDMI	HDCP 2.2, 2.3, EDID (encoder), CEC (decoder)

Connectors	
LAN	8-pin RJ-45 connector, female; 100BASE-TX / 1000BASE-T Ethernet port / PD port POE (IEEE 802.3af or 802.3at)
HDMI INPUT	HDMI Type A connector, female; HDMI digital video/audio inputs
HDMI Outputs (Encoder loop-through & Decoder output)	HDMI Type A connector, female; HDMI digital video/audio inputs
1st - 8 pin Euroblock 3.81mm pitch connector	GPIO out / RS-232 ports
2nd - 8 pin Euroblock 3.81mm pitch connector	Encoder Stereo Balanced Analog Audio Input Decoder Stereo Balanced Analog Audio Output GPIO in ports
USB Host (Decoder)	(2) USB Type-A connector, female; USB 2.0 host port; USB signal extender port for connection to a mouse, keyboard, or other USB 2.0 device
USB Device (Encoder)	(1) USB Type-B connector, female; USB 2.0 device port; USB signal extender port for connection to a computer or other USB 2.0 host

Power	
Power Consumption	12 W typical

Environmental	
Cooling	Convection / no fan (no moving parts)
Temperature	32° to 104° F (0° to 40° C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	41 BTU/hr
Acoustic Noise	0 dBA

Form Factor	
Dimensions	Height: 1.15 in. (29.3 mm) Width: 5.75 in. (146 mm) Depth: 5.37 in. (136.4 mm)
Weight	1.0 lb (0.45 kg)

Compliance	
	CE, FCC, C-tick, RoHS, WEEE

VISIONARY
NETWORK AUDIO VIDEO

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Dimensions

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Top

5.18" – 131.6 mm

5.37" – 136.4 mm

5.75" – 146 mm

1.15" 29.3 mm

E5100 • Encoder

1.15" 29.3 mm

D5100 • Decoder

4.80" – 122 mm