

## DUET 2 • Encoder & Decoder

Distribute 4K UHD & Dante™ / AES67 over Gigabit Ethernet

### Overview

PacketAV® Duet has been nothing short of a paradigm shift for networked AV. True convergence; a single platform to support Dante™/AES67 and Video over IP. Building on their success and wide adoption, the next generation of PacketAV® Duet endpoints continue to provide powerful 4K UHD Video and Dante™/AES67 Audio - now over a single Gigabit Ethernet port, with USB-C connectivity and other enhanced features.

Visionary's PoE 4K UHD over IP cinema quality, ultra-low latency [~1 frame - visually lossless], encoders and decoders bypass the constraints of traditional switch matrix distribution systems by continuing to harness the flexibility and scalability of converged IP networks.

With the growing demand for 4K UHD video, professional AV designers and IT directors – in an increasingly converged AV/IT environment – have been using Visionary's products as an alternative to conventional distribution systems.

### Features

#### Single Main Gigabit LAN Port for 4K UHD Video, Dante™/AES67, Control, and Powered Device (PD)

- A single Ethernet port for Video over IP and Dante™/AES67 audio embedding and de-embedding, with VLAN tagging capability to separate Audio & Video network traffic as needed

#### Ethernet Expansion Port - Power Sourcing Equipment (PSE)

- This port enables network connectivity for control and IP traffic pass-through to remote LAN devices (ex. displays, projectors, control touch-panels).
- The port can also be used to daisy-chain multiple endpoints for easy video wall creation or extend distances to displays



Visionary's PacketTV® and PacketAV® products can be deployed on any industry standard IP network. They can be used on existing enterprise IP networks or a physically separate parallel network [private network] to offload traffic, using the same network protocols, methods, and devices but without intermingling of video traffic with data or voice; with equal ease of installation.

#### Power connected devices with PoE pass-through

- Encoders and Decoders only require standard PoE power (15w or lower), however, when PoE+ is supplied to the Main LAN port you can pass-through PoE power to devices connected to the Ethernet Expansion Port

#### Multiple selectable local input sources w/ HDMI loop-through (Encoder)

- 2 x HDMI® and 1 x USB-C input and 1 x HDMI output
- Switching between the three inputs can be performed automatically using auto-switching (input detect) mode, programmatically via a control system, or through a web browser
- HDMI loop-through: display any of the three locally connected sources

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### Features cont.

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#### USB-C Connectivity

##### Encoder: USB-C Input

- Connect easily and share media from your Mac, Laptop, Tablet, Mobile, and Other USB-C enabled devices
- *Note: Not all devices will be compatible; Source devices must support DisplayPort Alt Mode for USB Type-C or Thunderbolt.*

##### Decoder: USB-C Output

- Enables soft-codec integration via driverless USB 2.0 connection to a PC for web conferencing applications such as Zoom, Skype, Cisco WebEx, and Microsoft Teams
- Capture, record, and stream meetings, presentations, conference cameras, and security footage directly to your PC
- Dynamically switch and view decoder output on your PC for recording, editing, videoconferencing, and streaming applications
- Use the PC streaming software of your choice and live broadcast your signal to any online video platform
- Bridge Dante™/AES67 audio into soft-codec via USB-C
- Eliminate distance limitations with USB cables and extension - access right where you need it, close to every device that needs it
- USB Video Class (UVC) - compliant, a video capture standard that's compatible with Mac OSX, Windows®, Linux® and Android operating systems
- Output Resolutions up to 1080p

#### Independent Routing

- Independently route all signals with the ability to separately matrix video, audio (including Dante™/AES67), USB, IR, and serial (RS-232)

#### 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])

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

##### Enterprise applications demand a secure Network AV solution

- 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. It also ensures privacy for applications and users using the API
- 802.1x Authentication for Network access control - 802.1X provides a secure authentication mechanism for any device trying to access a network
- SSH Network Protocol - SSH is a network protocol used to remotely access and manage a device through command line communications. The key difference between Telnet (used by other AV over IP manufacturers) and SSH is that SSH uses encryption, which means that all data transmitted over a network is secure

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### Features cont.

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#### 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 embedded webpage 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

#### Seamless Fast Switching

- Tearing free, no black screen, no frame lock

#### GPIO - 2x2 I/O User Configurable

- Control third party devices from any endpoint on the network

#### USB 2.0 over IP (KVM), RS-232 over IP, IR 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
- Seamlessly control infrared devices

#### KVM Multi Display Roaming

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

#### Built in Video Wall Functions

- A Single platform to support distributed displays and Video Walls; without separate expensive video wall processors and controllers
- 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 16x16 video wall

#### Auto Video Scaler

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

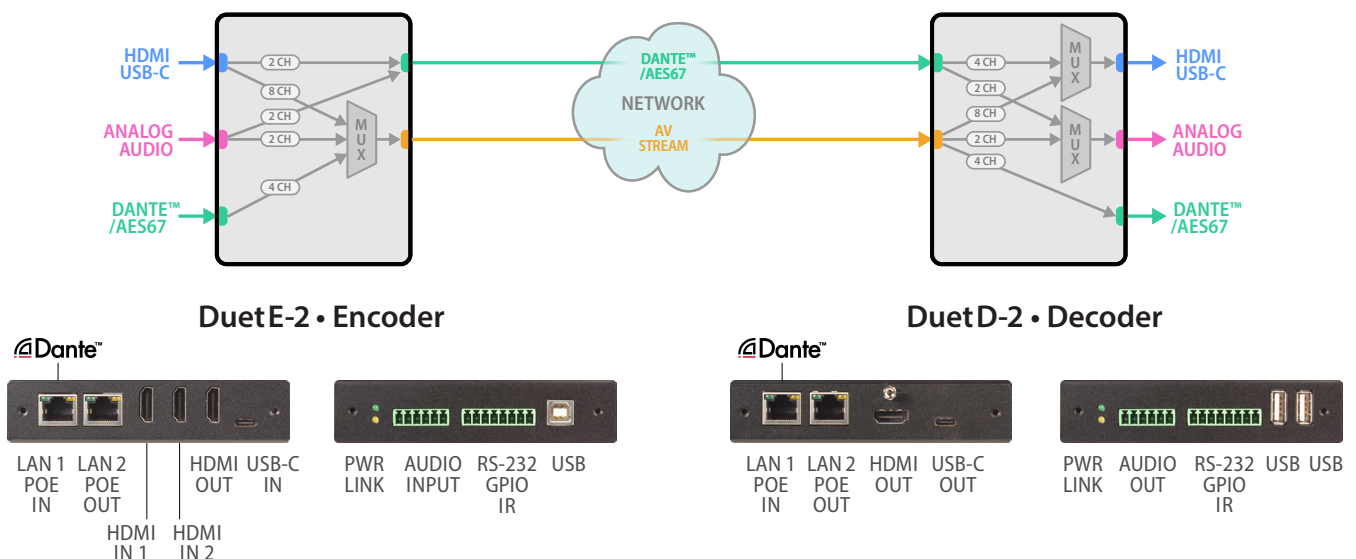
#### HDMI 2.0 and HDCP 2.2 Compliant

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### Benefits

- A single Gigabit LAN Port for PoE Power, 4K UHD Video, Dante™/AES67, and Control
- Secure Network Isolation - VLAN Tagging separates AV traffic on the corporate network
- One LAN drop to decoder enables local IP control of connected devices through Ethernet expansion port
- Built in connectivity for web conference soft-codec AV integration
- Eliminates need for separate AV Bridging hardware
- Capture, record, and stream meetings directly to PC (USB-C)
- Effortlessly share media from your USB-C enabled devices
- Acts as an in-rack or Bring Your Own Device (BYOD) endpoint for presentation sharing and conferencing applications
- Local input switching
- Easy Control Integration
- Ultra-low Latency [ ~1 frame - 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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## Specifications

Encoding / Decoding	
Video Codec	JPEG2000 based visually lossless video compression algorithm
Audio Codec	Dante™ / AES67
Bit Rates	50 to 800 Mbps
Latency	Ultra-low Latency (visually lossless video) 17ms @ 1080p60 & 4K60 4:2:0 33ms @ 4K30 4:4:4
Streaming Protocols	IP, UDP, TCP, ICMP, IGMP
Copy Protection	HDCP 2.2, AES-128 Encryption
Video	
Maximum Resolutions	High Dynamic Range (HDR) 4K60 4:2:0 HDR 8 bit 4K30 4:4:4 HDR 8 bit 1080p60 4:4:4 HDR 12 bit 1080p30 4:4:4 HDR 12 bit
Input Signal Types (Encoder)	2x HDMI & 1x USB-C capable of receiving source input video formats up to 4K60 4:2:0 (DisplayPort Alt Mode for USB Type-C or Thunderbolt)
Output Signal Types:	Decoder: 1x HDMI capable of scaling and outputting video formats up to 4K30 4:4:4 Decoder: 1x USB-C capable of scaling and outputting video formats up to 1080p60 4:4:4 Encoder: (HDMI Loop Out) capable of outputting video formats up to 4K60 4:4:4
Switcher (Encoder)	2 x HDMI® and 1 x USB-C input and 1 x HDMI output (manual or auto-switching)
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, Dante™/AES67 Network Audio (up to 4 channels) • 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, Dante™/AES67 Network Audio • 1 digital audio output via HDMI • 1 Analog Stereo Audio balanced output • 1 Dante/AES67 digital audio output (up to 4 channels)
Digital Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio, 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
Dante™/AES67	24-bit 48 kHz
Analog Output Volume Adjustment	-80 to +20 dB

Communication & Control of External Devices	
Ethernet	Network connectivity for control and IP traffic pass-through to remote LAN devices
USB	USB 2.0 host or device signal extension and routing
GPIO	For extension and control of third-party devices
Serial / RS-232	Bi-directional device control and monitoring
IR	Device control via infrared
HDMI	HDCP 2.2, EDID (encoder), CEC (decoder)
Connectors	
LAN 1	8-pin RJ-45 connector, female; 100BASE-TX / 1000BASE-T Ethernet port / PD port POE+ (IEEE 802.3at), POE+ Only required for LAN2 PSE
LAN2	8-pin RJ-45 connector, female; 100BASE-TX / 1000BASE-T Ethernet port / PSE port POE (IEEE 802.3af)
HDMI INPUT 1 & 2 (Encoder)	(2) HDMI Type A connectors, female; HDMI digital video/audio inputs
HDMI Outputs (Encoder loop-through & Decoder output)	HDMI Type A connectors, female; HDMI digital video/audio inputs
USB-C	Encoder input: (1) USB Type C connector, female; Decoder output: (1) USB Type C connector, female;
6 pin Euroblock 3.81mm pitch connector	Shared GPIO / RS-232 / IR 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: 1.1 in. (28 mm) Width: 5.75 in. (146 mm) Depth: Encoder 6.89 in. (175 mm) Decoder 7.08 in. (180 mm)
Weight	1.0 lb (0.45 kg)
Compliance	
	CE, FCC, C-tick, RoHS, WEEE

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### Dimensions

