

L025AE

2x 1GbE RJ45, 1x SD/HD/3G-SDI, 1x HDMI



PHYSICAL

Dimensions (W x H x D)	42.67 cm x 4.45 cm x 36.00 cm 16.80 in x 1.75 in x 14.17 in
Weight	7 kg (Unit) 12 kg (Gross)
ECCN	4A994
USHTS Code	8471.50.0150

ELECTRICAL

Max Potential Power	135 Watts (Max)
Heat Dissipation	460.64 BTU/hr (Max)
Line Frequency	50 - 60 Hz
Input Voltage	100 - 240 VAC
PSU Power Connector	C14



NOTE: Data center specific cabling is not provided, only regional mains power cabling provided.

ENVIRONMENTAL

Operating Conditions	5 to 35 °C (41 to 95 °F) 8% to 90% RH (non-condensing)
Storage Conditions	-40 to 70 °C (-40 to 158 °F) 5% to 95% RH (non-condensing)
Noise Level	56 dBA (Max)
Electromagnetic Compliance	FCC Class B, CB Scheme
Safety Compliance	CE Mark, UL/ULC

SYSTEM

System Management	IPMI 2.0
Storage Capacity	1TB HDD
Interfaces	2x 1GbE RJ45 1x SD/HD/3G-SDI 1x HDMI

PORT CONFIGURATION



INPUT SUPPORT

Live Input

- Single and Multiple Program Transport Streams (SPTS, MPTS) over UDP/IP and RTP/IP with FEC or SMPTE ST 2022-7
- SDI (uncompressed): SD-SDI, HD-SDI, 3G-SDI
- Packaged network inputs: Apple HLS TS with muxed audio and video
- Video codecs:
 - H.264 up to 4:2:2 10 bit
 - H.265 up to 4:2:2 10 bit
 - MPEG-2
 - Apple ProRes®
 - RAW
- Audio codecs:
 - AC-3 (Dolby Digital)
 - EAC-3 (Dolby Digital Plus) *
 - Dolby E *
 - AAC
 - MPEG-1 Layer II
 - PCM

Live Input Redundancy

- Input integrity: Generate repeat, black, slate, or color when input is missing

Live Input Redundancy Trigger Conditions

- User-configurable
- Time-based errors ("Input Loss", "Video Loss", "Audio Silence", "Video Freeze", "Video Black")
- Event based errors ("Transport Error Indicator Flag", "Continuity Counter Errors", "RTP Packet Loss")

File Input

- Containers: MXF (AS-02, OP-1a-c, OP-2a-c, OP-3c), QuickTime, MPEG-4
- Packaged files: HLS, Adobe Flash
- Discrete audio and caption inputs
- OP-47 captions from 436M track of input MXF files

File Input Features

- Separate audio and video files
- Audio delay offset
- Audio PID tracking
- Audio language tracking
- Audio track selection
- MPEG-2 deblocking
- Source file clipping
- Fast seek
- Merge multiple sources to single output
- Channel selection for multitrack inputs
- Audio only input
- Amazon S3 support
- Static image overlay per input

Multichannel Audio Input

- Per clip audio channel assignment
- Unlimited audio tracks

Timecode	<ul style="list-style-type: none"> - Time code source embedded - Time code source use local system clock - Override time code date - Start encoding at specified timecode - External reference connector
Captions	<ul style="list-style-type: none"> - Ancillary, DVB-Sub, SCTE-20, null, SCC, SMI, SRT, STL, Teletext, TTML, ARIB, EBU-TT-D - Source CC channel - 608 to 708 upconvert - SCTE-27 pass-through support
Ad Avail	<ul style="list-style-type: none"> - ESAM - SCTE-35 splice insert - SCTE-35 with APOS - SCTE-35 Pullup - SCTE-104 digital cue tone passthrough - Ad avail blanking - Black-out capability
Nielsen	<ul style="list-style-type: none"> - Nielsen ID3 certification
Notifications	<ul style="list-style-type: none"> - Web callback - Email
Scripting	<ul style="list-style-type: none"> - Pre and post processing scripts - Blank output during ad avail
608 Extended Data Services	<ul style="list-style-type: none"> - Line 21 passthrough, rewrite, strip, insert
Copy and Redistribution Control Packets	<ul style="list-style-type: none"> - Line 21 passthrough, rewrite, strip, insert

OUTPUT FORMATS

Video	<ul style="list-style-type: none"> - H.264 (Baseline, Main, High up to 4:2:0) - H.265 (Main, Main10 up to 4:2:0) - MPEG-2 - Apple® ProRes (up to 4:2:0) - Frame capture to JPEG (thumbnail creation) - I-frame only mode - Uncompressed
Audio	<ul style="list-style-type: none"> - AAC-LC, AAC-HEV1, AAC-HEV2 (MPEG-2, MPEG-4, LATM/LOAS) - Uncompressed WAV, AIFF - AC-3 (Dolby Digital) *, AC-3 passthrough - EAC-3 (Dolby Digital Plus) *, EAC-3 passthrough - Dolby Atmos passthrough - DTS Express * - MPEG-1 Layer II - Audio only output support (TS, HLS, MSS, RTMP)
Multichannel Audio Output	<ul style="list-style-type: none"> - Per clip audio channel assignment - Unlimited audio tracks

Multilanguage Support

- Follow input type (ISO 639)
- Insert audio type (ISO 639)
- Follow language code
- Insert language code

OUTPUT CONTAINERS

Live Streaming Outputs

- Adobe RTMP Streaming (RTMP, RTMPS)
- Apple HTTP Adaptive Streaming (HLS)
- Microsoft Smooth Streaming (ISMV)
- MPEG DASH (ISOBMFF)
- MPEG-2 Part 1, Systems, CableLabs compliant (EBIF passthrough, EBP, PSI, RAI segmentation marker) (MPEG-TS)
- Real Time Protocol (RTP)
- Single and Multiple Program Transport Streams (SPTS, MPTS) over UDP/IP and RTP/IP with FEC
- Zixi push protocol

File Outputs

- Apple QuickTime and ProRes (MOV)
- Sony XDCAM MXF (XDCAM)
- RAW YUV or RGB formats (Uncompressed)
- MPEG-4 Part 10 (MP4)

Apple HTTP Adaptive Streaming (HLS)

- TS or fMP4 segment types
- Byte range offset
- Single file / multiple segments
- Segment length
- Minimum segment length
- Auto upload to CDN
- Content base URL
- Manifest base URL
- Use subdirectories
- Disable caching
- Floating point manifests
- Resolution tag
- Compressed manifests
- Use Pantos 7 CODEC identifiers
- Program-Date-Time flag
- Closed-caption tag
- Ad markers - Adobe
- Ad markers - Simple
- Ad markers - SCTE-35 enhanced
- SCTE ST 2038 ancillary data
- Alternate manifest destination
- File transfer protocols (HTTP push, Akamai, Webdav) with ULL chunked transfer

Encryption

- AES CBC, CTR, EBC
- Key providers - 1Mainstream, Conax, Inside Secure, Irdeto, Pikel, PlayReady, Secure media, Cisco, Verimatrix, SPEKE

- MPEG DASH (ISOBMFF)**
- Single file / multiple segments with ULL chunked transfer
 - Fragment length
 - Segment length
 - ULL chunked encoding
 - HbbTV 1.5 support
 - Base URL
 - Minimum buffer time

- Encryption**
- DASH-CENC
 - Key providers - Widevine, Pkixel, SPEKE, PlayReady
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- Microsoft Smooth Streaming (ISMV)**
- Manifest level encoding (UTF-8, UTF-16)
 - Collapse identical audio streams

- Encryption**
- AES CTR
 - PlayReady support
 - Key providers - Conax, Inside Secure, Seachange, Pkixel, Irdeto, SPEKE
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- Reliable TS Output**
- Deliver to AWS Elemental MediaConnect
 - Zixi push protocol

- Encryption**
- AES-128, AES-192, AES-256

SYSTEM CONTROL

- CDN**
- Integrated CDN support: Basic PUT, WebDav, and Akamai
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- Load Balancing**
- Manual or automated load balancing options
 - Notifications and alerts
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- Monitoring**
- System resource and statistics monitoring
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- User Authentication**
- Multiple authentication tiers, Amazon S3 public and private keys
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- AWS Elemental Conductor Live**
- Separate management system for control, monitoring and worker failure recovery in a multi-system configuration
 - Provision and operate channels using templates
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- Network Management**
- SNMP version 2c
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- Real-time Controls**
- Stop, pause and resume individual streams as well as archived files
 - Audio gain adjustment for real-time control of audio volume
 - Video and audio preview

IMAGE ENHANCEMENT

Anti-aliasing Scaling	- Reduce distortion artifacts when downscaling
Lanczos Scaling	- Multivariate interpolation
Deblocking and Denoise	- Remove common blocking and noise video artifacts
Deinterlacing	- Motion adaptive interpolation - Motion adaptive blend - Motion adaptive interpolation with ticker
Inverse Telecine	- Removes 2-3 frame format, restores original 24 fps frame rate
Telecine	- None, soft or hard
Adaptive Quantization	- Intraframe perceptual QP variation
Scene Change	- Scene change detection
Look Ahead	- Look ahead rate control
Gaming Optimizations	- Fast complexity changes and rapid quality recovery during transitions
Noise Reduction	- Noise filtering capability (Bilateral, Mean, Gaussian, Lanczos, Sharpen, Conserve, Perceptual)
Static Logo Insertion	- Up to eight static image overlays (BMP, PNG or TGA format) - Apply image overlay to a single input, a single output, or globally - Specify z-order and opacity
Thumbnail Creation	- Create thumbnail JPEG images for any single frame or at custom intervals
Color Correction	- Brightness, contrast, hue, saturation - Full swing range or passthrough - 601, 709 color space conversion - HDR to SDR down conversion
MPEG-2 Error Concealment	- Temporal pixel substitution
Cropping	- Select pixel locations to crop
Timecode Burn In	- Text, font size, position

AUDIO ENHANCEMENT

Level Adjustment	- Volume control
Audio Loudness Management	- Audio loudness monitoring and correction; results stored to file (CALM compliant) *
Channel Mixing and Mapping	- Manual audio remixing - Broadcaster mixed AD

Rate Conversion	- Adjust audio sample rate and frequency
Formats	- Encode multiple formats simultaneously
Multiple Audio Tracks	- Support for multiple audio streams for each video stream (SAP)

OTHER FEATURES

Metadata	- VBI passthrough (V-Chip, CGMS-A) - KLV Data
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Caption Extraction and Passthrough	- Inputs: <ul style="list-style-type: none">• Embedded• SCC• Teletext - Transcaption Outputs: <ul style="list-style-type: none">• CFF-TT• DVB-sub• Embedded• Embedded+SCTE-20• SCTE-20+Embedded• SCC• SMI• SMPTE-TT• SRT• Teletext• TTML• WebVTT - Open caption support - Caption burn in - Language flag insertion
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Processing	- Rate control <ul style="list-style-type: none">• CBR encoding• QVBR (Quality-Defined Variable Bitrate) encoding• VBR encoding - Insert / respond to AFD - Scene change detect - Minimum I-frame interval - Force interlace mode - Variable GOP support - Content-adaptive B frames - RTMP metadata insertion - EBIF passthrough - EBP, PSI, RAI segmentation marker
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* Available with Optional License