

ViBE® 4K

ULTRA HD ENCODER



The Harmonic ViBE® Ultra HD encoder enables rapid deployment of reliable and eye-catching UHD content for both distribution and contribution applications.

With the significant increase in UHD TV sets hitting the market, content providers and broadcasters are looking for a solution to address the needs of early adopters of the premium TV standard. Compact and reliable, the ViBE 4K real-time encoder is the answer. Picture quality is a primary objective of the platform, and the ViBE 4K delivers pristine UHD for an immersive experience with high-resolution and high-frame-rate technology.

Innovative Technology

Processing uncompressed UHD signals at eight times the bitrate of current HD sources, the ViBE 4K encodes content in real-time via HEVC (H.265), today's most advanced compression standard. With its wide range of encoding tools, HEVC offers incredible compression efficiency, making live UHD delivery available for satellite, cable, terrestrial and fiber networks.

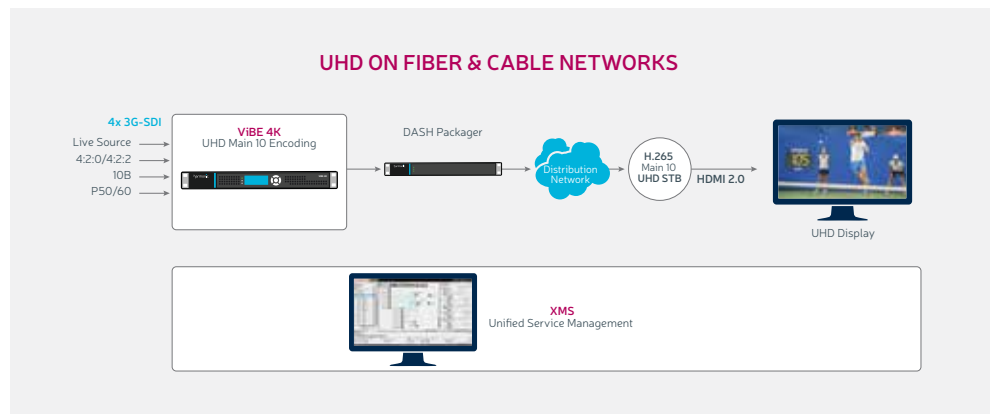
The ViBE 4K employs a 10-bit precision encoding technology originally reserved for professional transmission. As a result, image details, sharpness and color gradients are preserved throughout the distribution process — right up to the consumer's UHD display.

Versatile & Future-Proof

Contribution and distribution use cases are supported on the ViBE 4K. The encoder supports 4:2:2 and low-latency encoding; combined with its significant HEVC bitrate savings, the ViBE 4K offers broadcasters a true jump on the competition. The platform is simple and cost-effective to deploy, and is interoperable with the Harmonic Amethyst™ III smart redundancy switch, enabling a compact 1+1 UHD redundant solution in just 3 RU. Compatible with major HDR solutions, the ViBE 4K is also ready for the next phases of UHD TV.

World-Class Service and Support

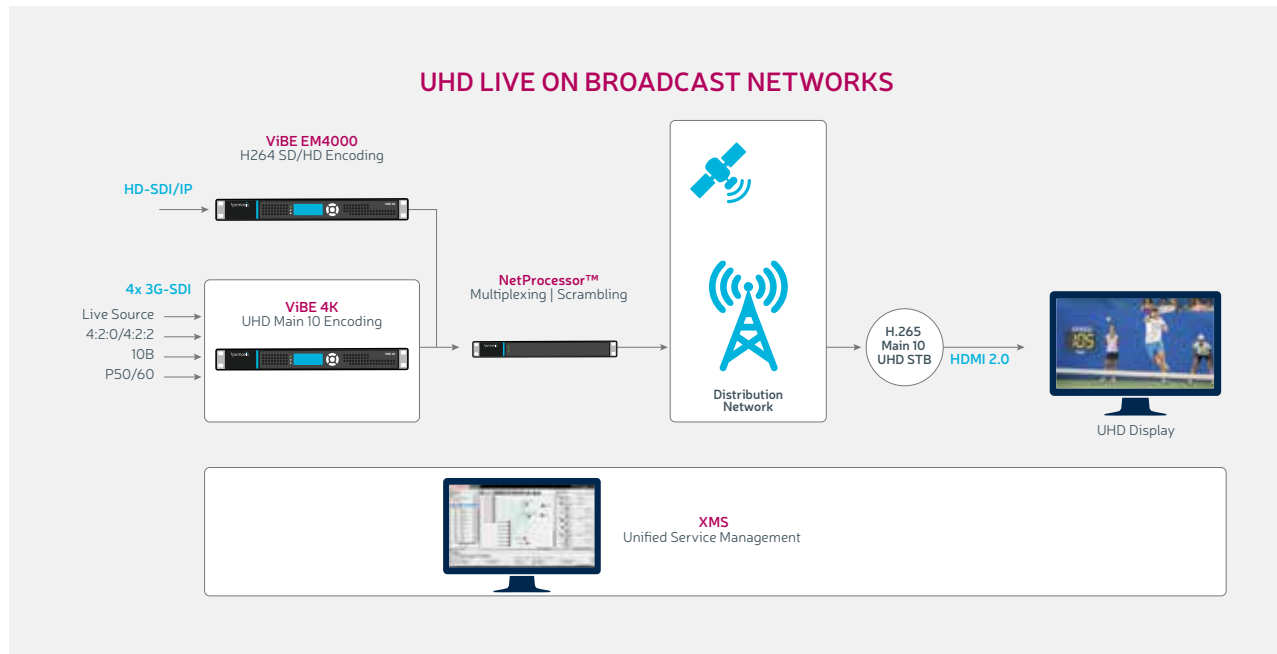
Harmonic stands behind the ViBE 4K platform with comprehensive service and support programs, including system design, service deployment, technical support and network maintenance. World-class service plans and a global network of flexible and responsive support professionals help ensure your ability to deliver outstanding "anytime, anywhere, any-device" customer experiences.



OTT Delivery Compatible

HIGHLIGHTS

- Superior real-time HEVC compression
- Ultra HD support
- HEVC Main 10 & Main 422 10-bit encoding at 50/59.94 fps
- Compact and low-power appliance
- Low latency
- Compatible with external DASH packager for OTT delivery
- Compliant with EBU UHD Phase 1 specifications
- High dynamic range (HDR) support



Satellite Delivery Compatible

SPECIFICATIONS

INPUT/OUTPUT

Input	Four 3G-SDI SMPTE 425-1 Level A, four quadrants
Outputs	SPTS (IP streaming) Dual GbE interfaces FEC generation (SMPTE 2022-1) on IP streams

VIDEO PROCESSING

HEVC (H.265/MPEG-H) Encoding Profiles	Main @ L4.1 & L5.1 Main 10 @ L4.1 & L5.1 Main 10 422 @ L4.1 & L5.1
Encoding Scheme	CBR (seamless bitrate change) Single slice
Bit Depth	8/10-bit
Formats	3840x2160p (UHD) 1920x1080p (FHD)
Frame Rates	25Hz, 29.97Hz, 30Hz, 50 Hz, 59.94 Hz, 60Hz
Color Gamut Signaling	BT. 709 BT. 2020 (WCG)
Luminance Law Signaling	ITU 1886 (Standard) Hybrid Log-Gamma (HDR) SMPTE 2084 (HDR)
Encoding Latencies	Short (0.8 sec) Standard (1.3 sec)
Bitrates	UHD 4-160 Mbps HD 1-50 Mbps
Ancillary Data Processing	Teletext subtitling (OP-47)

AUDIO PROCESSING

Audio Input Formats	PCM embedded in SDI Dolby® Digital (AC-3, E-AC-3, AC-4) precompressed in SDI Dolby E in SDI
Formats and Bitrates	AC-3 2.0 128-448 kbps AC-3 5.1 384-640 kbps AC-4 2.0 48-64 kbps Dolby Digital Plus (E-AC-3) 5.1 192-448 kbps Dolby AC-4 5.1 96-128 kbps AAC-LC/HE-AAC 2.0 32-160 kbps AAC-LC/HE-AAC 5.1 96-448 kbps
Processing Capabilities	AC-3, E-AC-3 & AC-4 passthrough Dolby E to AC-3 transcoding Dolby E to E-AC-3 transcoding AC-3 to E-AC-3 transcoding Dolby E to HE-AAC transcoding Dolby E to Dolby AC-4 transcoding Jünger Level Magic automatic loudness control

CONTROL AND MONITORING

XMS network management system, including N+P redundancy	1 RU x 19 in
Embedded web server	
SNMP agent	
Front panel	

SPECIFICATIONS

PHYSICAL

Dimensions (H x W x D)	1.73 in x 17.68 in x 25.16 in (1 RU) 4.4 cm x 44.9 cm x 63.9 cm
Weight	26.7 lbs/12 kg
Power Consumption	190 W
Input Voltage	100-240 VAC
Cooling	Front to rear airflow
Features	Dual power supplies
Redundancy	1+1 automatic redundancy with Amethyst IP (option)

ENVIRONMENTAL

Operating Temperature	41° to 104° F 5° to 40° C
Storage Temperature	23° to 113° F -10° to 70° C
Maximum Humidity	90%
Electromagnetic Compliance	CE marked in accordance with the 93/68/EEC (22/07/93) directive EN 55022 EN 55024 EN 61000-3-2
Safety	IEC 60950 and EN 60950 UL 60950

ORDERING INFORMATION

HARDWARE ELEMENTS

Part Number	Description
VIBE4K-1U-1CH-2AC	VIBE 4K platform with dual PSU, IP output

VIDEO SOFTWARE LICENSES

Part Number	Description
VIBE4K-LIC-ENC-MPH4K	HEVC UHD & FHD encoding
VIBE4K-LIC-ENC-MPHHD	HEVC FHD encoding
VIBE4K-LIC-ENC-422	4:2:2 encoding

AUDIO SOFTWARE LICENSES

Part Number	Description
VIBE4K-LIC-ENC-MP1L2	MPEG-1 Layer II stereo encoding
VIBE4K-LIC-ENC-DD20	AC-3 or E-AC-3 2.0 stereo encoding
VIBE4K-LIC-ENC-AC420	Dolby AC-4 2.0 stereo encoding
VIBE4K-LIC-ENC-AAC	AAC 2.0 stereo encoding
VIBE4K-LIC-ENC-DD51	AC-3 or E-AC-3 5.1 surround encoding
ViBE4K-LIC-ENC-D451	Dolby AC-4 5.1 surround encoding
VIBE4K-LIC-ENC-AAC51	HE-AAC 5.1 surround encoding

FEATURE SOFTWARE LICENSES

Part Number	Description
VIBE4K-LIC-JUNG	Jünger Level Magic automatic loudness control
VIBE4K-LIC-DEC-DE	Dolby E decoding
VIBE4K-LIC-FEC	FEC SMPTE 2022-1 generation
ViBE4K-LIC-HDR-PQ	HDR compliant with SMPTE 2084 (PQ) gamma law
ViBE4K-LIC-HDR-HLG	HDR compliant with HLG gamma law