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.

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
### SPECIFICATIONS

**INPUT/OUTPUT**
- **Input**: Four 3G-SDI
  - SMPTE 425-1 Level A, four quadrants
- **Outputs**: SPTS [IP streaming]
  - 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 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, 50Hz, 59.94Hz, 60Hz
- **Color Gamut Signaling**: BT. 709
- **Luminance Law Signaling**: ITU 1886 (Standard)
  - Hybrid Log-Gamma (HDR)
  - SMPTE 2084 (HDR)
  - Encoded 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 x 19 in
- **Embedded web server**
- **SNMP agent**
- **Front panel**
# SPECIFICATIONS

## PHYSICAL
<table>
<thead>
<tr>
<th>Dimension (H x W x D)</th>
<th>1.73 in x 17.68 in x 25.16 in (1 RU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>26.7 lbs/12 kg</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>190 W</td>
</tr>
<tr>
<td>Input Voltage</td>
<td>100-240 VAC</td>
</tr>
<tr>
<td>Cooling</td>
<td>Front to rear airflow</td>
</tr>
<tr>
<td>Features</td>
<td>Dual power supplies</td>
</tr>
<tr>
<td>Redundancy</td>
<td>1+1 automatic redundancy with Amethyst IP (option)</td>
</tr>
</tbody>
</table>

## 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
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIBE4K-1U-1CH-2AC</td>
<td>VIBE 4K platform with dual PSU, IP output</td>
</tr>
</tbody>
</table>

## VIDEO SOFTWARE LICENSES

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIBE4K-LIC-ENC-MPH4K</td>
<td>HEVC UHD &amp; FHD encoding</td>
</tr>
<tr>
<td>VIBE4K-LIC-ENC-MPHHD</td>
<td>HEVC FHD encoding</td>
</tr>
<tr>
<td>VIBE4K-LIC-ENC-422</td>
<td>4:2:2 encoding</td>
</tr>
</tbody>
</table>

## AUDIO SOFTWARE LICENSES

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIBE4K-LIC-ENC-MPL2</td>
<td>MPEG-1 Layer II stereo encoding</td>
</tr>
<tr>
<td>VIBE4K-LIC-ENC-DD20</td>
<td>AC-3 or E-AC-3 2.0 stereo encoding</td>
</tr>
<tr>
<td>VIBE4K-LIC-ENC-AC420</td>
<td>Dolby AC-4 2.0 stereo encoding</td>
</tr>
<tr>
<td>VIBE4K-LIC-ENC-AAC</td>
<td>AAC 2.0 stereo encoding</td>
</tr>
<tr>
<td>VIBE4K-LIC-ENC-DD51</td>
<td>AC-3 or E-AC-3 5.1 surround encoding</td>
</tr>
<tr>
<td>VIBE4K-LIC-ENC-D451</td>
<td>Dolby AC-4 5.1 surround encoding</td>
</tr>
<tr>
<td>VIBE4K-LIC-ENC-AAC51</td>
<td>HE-AAC 5.1 surround encoding</td>
</tr>
</tbody>
</table>

## FEATURE SOFTWARE LICENSES

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIBE4K-LIC-JUNG</td>
<td>Jünger Level Magic automatic loudness control</td>
</tr>
<tr>
<td>VIBE4K-LIC-DEC-DE</td>
<td>Dolby E decoding</td>
</tr>
<tr>
<td>VIBE4K-LIC-FEC</td>
<td>FEC SMPTE 2022-1 generation</td>
</tr>
<tr>
<td>VIBE4K-LIC-HDR-PQ</td>
<td>HDR compliant with SMPTE 2084 (PQ) gamma law</td>
</tr>
<tr>
<td>VIBE4K-LIC-HDR-HLG</td>
<td>HDR compliant with HLG gamma law</td>
</tr>
</tbody>
</table>