



## 4K UHD & Multi-HD Encoder

The Haivision Rack400 is a compact video encoder for quad-HD, 4K UHD, and HDR remote production of live sports and news. The Rack400 includes hardware accelerated H.265/HEVC and H.264/AVC encoding for premium video quality, optimized bandwidth consumption, and end-to-end latency as low as 80 milliseconds.

Designed for remote production workflows, the Rack400 keeps video and audio streams in sync for seamless camera switching by on-prem or cloud production workflows. To facilitate communications between field operators and production staff, the Rack400 can be connected to an external monitor to display video return feeds as well as supporting a bidirectional audio intercom (IFB). The Rack400 can also be connected to PTZ cameras and tally lights enabling them to be remotely controlled by a Haivision StreamHub receiver during live transmissions.

Designed for both fixed and mobile deployments, the Rack400 can be used as a standalone appliance or up to 2 units can be rack mounted in a 1RU space making it suitable for places where space is limited such as OB vans. The Rack400 provides significant flexibility when it comes to transmitting video so that you are always ready to go live, no matter where the event is taking place. It can be connected to IP networks through its ethernet ports, to Ka satellite transmitters or to a Haivision Quad CellLink active cellular antenna for situations in which cellular connectivity is needed.



### Simple

An intuitive touch-screen user interface enabling camera operators to begin broadcasting live video with just 2 taps.



### Versatile

Encode and transmit a single 4K UHD source or four HD sources with up to 10-bit pixel depths, 4:2:2 chroma subsampling, and in HDR.



### High Performance

Ultra-low latency H.264 and HEVC video encoding and transmission for pristine quality live broadcast contribution.



### Any Network

Leveraging the Emmy® award winning SST and SRT protocols, the Rack400 can reliably transmit live video over any network even with fluctuating conditions.

## Main Functions

**Premium Live Video up to 4K UHD** The Haivision Rack400 offers ultra-low latency HEVC encoding technology for pristine HD and UHD video transmission over all types of IP networks. Supporting SRT for safe and reliable streaming over the internet as well as SST for cellular bonding technology using an optional Haivision Quad CellLink antenna, the Rack400 can transmit live video with bitrates up to 80Mbps for high-quality broadcast contribution.

**Multi-camera Remote Production** Bring your remote production and REMI workflows to the next level with four frame-synced HD feeds and simultaneous remote control of IP-based equipment including PTZ cameras. Thanks to high bandwidth and low-latency IP video transmission, the Rack400 enables multi-camera remote production from anywhere.

**IFB & Video Return** Ensure two-way audio communication between the producer, camera operator & on-air talent thanks to a seamless and robust intercom system. The Rack400 can also receive a high-quality and encrypted HD feed from the production studio during a live broadcast or in standby mode. With sub-second latency streaming, Rack400 return feeds can be used for watching on-air programs, teleprompting information or confidence monitoring from the field.

**Record & Progressive Forward** Record UHD/HD broadcast-grade quality video on an SD card and optimize your file forwarding time by with progressive uploads while the live recording is still in progress. The Rack400's advanced recording and file forwarding enables fast and error-free video delivery over any IP network.

**VIDEO***Standards*

UHD: 2160p60/59.94/50/30/29.97/25/24/23.98  
 HD: 1080p60/59.94/50/30/29.97/25/24/23.98  
 1080i60/59.94/50  
 720p60/59.94/50

*Density*

Single UHD/HD  
 Quadruple HD

*Encoding*

H.265/HEVC 4:2:0/4:2:2, 8/10-bit  
 H.264/AVC 4:2:0, 8-bit  
 Dynamic resolution adjustment  
 High Dynamic Range (HLG & PQ)

*Bitrates*

2 Mbps to 80 Mbps for UHD  
 300 Kbps to 20 Mbps for HD  
 Constant Bitrate (CBR)  
 Variable Bitrate (VBR)

*Inputs*

SDI

**AUDIO***Encoding*

AAC-LC

*Bitrates*

32 Kbps to 256 Kbps

*Mode*

Mono, Stereo

*Density*

Up to 4 Stereo or 8 Mono per source

*Inputs*

Embedded over SDI

**NETWORK CONNECTIONS***Ethernet*

2 x Gigabit Ethernet ports  
 - LAN, WAN  
 - portable satellite (Ka & Ku Band)

*Cellular*

With optional Haivision Quad CellLink  
 - 4 x 3G/4G-LTE world-wide compliant modems  
 - IPv4 and IPv6 compliant  
 - 4 SIM slots  
 - High efficiency embedded antenna

*Transport Protocol*

SST over Cellular/Ethernet (bonding)  
 SRT over Ethernet

**ADVANCED FEATURES***Video Encoding*

Dual encoding for simultaneous Live & Record (single HD mode)  
 Video downscaling at a fixed resolution

*Streaming*

Sub-second glass-to-glass latency (down to 80 ms in single encoder mode and down to 500 ms in multi-encoder mode)  
 AES encryption of live broadcasts  
 IP Data Bridge for using the device as a mobile router  
 Simultaneous live broadcasting and IP traffic (for remote camera control)  
 Prioritize Network Links (user configurable)

*Video Returns*

Full HD video return  
 Sub-second latency  
 AES encryption  
 Return feed generation (up to 2 interlaced or 4 progressive video sources)

*User Interface and Operations*

Video and Audio level preview  
 Remote dynamic latency adjustment during a live broadcast  
 Automatic Live Start  
 Start/Stop live broadcast and recording from camera  
 (Sony, Panasonic or Blackmagic)

*Audio*

Intercom/IFB with AES encryption

*Metadata*

Closed Captions EIA/CEA/CTA-608/708  
 SMPTE-12M timecode passthrough  
 SMPTE-2038 (transparent carriage of ancillary data)

**INTERFACES**

1 x 12G/3G-SDI input and 3 x 3G-SDI inputs (BNC)  
 1 x 12G-SDI output (BNC) - reserved for future use  
 1 x HDMI 1.4 output  
 1 x GenLock input (BNC)  
 2 x Gigabit RJ-45 Ethernet  
 2 x USB 3.0 (type-A), 1 x USB 3.0 (type-C)  
 1 x mini jack for IFB/intercom headset  
 1 x micro SD card slot

**CONTROL & MONITORING**

Embedded touch screen  
 Web UI (through laptop, smartphone, etc.)  
 From Haivision StreamHub transceiver  
 From Haivision Manager

**POWER***Power Supply*

Dual DC input 18V

*Consumption*

34W max (25W to 30W typical)

**PHYSICAL***Dimensions (W x H x D)*

22.2 cm x 4.4 cm x 11.5 cm (8.66" x 1.57" x 4.33")

*Weight*

1.36 Kg / 3.00 lbs

*Operating Temperature*

-5°C to 45°C (23°F to 113°F)

**Software Version: 4.0**



## Live HD Video Encoding

Haivision Rack200 and Haivision Rack300 video encoders are designed for space-constrained outside broadcast and remote production workflows. Haivision Rack encoders can be deployed in fixed locations connected to an IP network, offering a cost-effective alternative to satellite or fiber. Rack encoders can also be installed in OB vans or trucks, connected to a roof-mounted Haivision Quad CellLink with 4 active 3G/4G antennas or to a Ka satellite transmitter, enabling live video contribution from any location, even with unpredictable network conditions.

Equipped with a user-friendly, intuitive touchscreen, Haivision Rack supports multiple modes of operation including live, record, live and record, file forward, and data bridge for high-speed internet connectivity.

Haivision Rack is an HEVC and H.264 video encoder for low bitrate and high-quality HD video streaming at sub-second latency. Powered by the two-time Emmy award winning SST protocol, Haivision Rack reliably delivers pristine quality video over multiple networks to ensure that sufficient bandwidth is always available and that video transmissions are uninterrupted. As a Haivision product, the Rack series of encoders also natively supports the SRT protocol for flawless video streaming, even in the face of packet loss, jitter and fluctuating network bandwidth.



### Simple

Extremely user-friendly with an intuitive touch-screen interface enabling camera operators to begin broadcasting live video with just 2 taps.



### Versatile

Featuring a compact 1/2U form factor, Haivision Rack encoders can be placed anywhere, even with limited space, and can also be rack mounted using a single or dual appliance 1U kit.



### High Performance

By implementing a low latency hardware encoder in a compact enclosure, the Haivision Rack Series enables producers to provide seamless and pristine video for news and events coverage.



### Any Network

Leveraging the Emmy® award winning SST and SRT protocols, the Haivision Rack Series can reliably transmit high-quality broadcast contribution video over bonded cellular and IP networks with fluctuating conditions.

|                     | Rack300 | Rack200 |
|---------------------|---------|---------|
| H.265/HEVC Encoding | •       |         |
| H.264/AVC Encoding  | •       | •       |

## Main Functions

**Live Video Encoding** Broadcast pristine quality live video over bonded IP networks with low latency: 3G/4G, Ethernet, Wi-Fi, BGAN, GX and Ka satellite bands.

**IFB & Video Return** Ensure two-way audio communication between camera operators, production crews & on-air talent with advanced intercom features. Receive and watch high quality HD feeds from the studio during live sessions or when the device is idled. With sub-second latency delivery, it is especially designed for receiving on-air program, teleprompting information or ensuring confidence monitoring from the field.

**Auto-Record and Progressive Forwarding** You can simultaneously stream live video while recording to an SD card with different resolutions and bitrates to ensure an optimal and constant video quality. Forward file recordings while recording is in progress, enabling quick and efficient broadcast production and creating a backup in the case of transmission interruption.

**Data Bridge** Leveraging the transmitter's aggregated networks connections, a Rack appliance can be used as a mobile router providing high-speed internet connectivity from anywhere.

**VIDEO***Standards*

HD: 1080p60/59.94/50/30/29.97/25  
 1080i60/59.94/50  
 720p60/59.94/50  
 SD: PAL, NTSC

*Encoding*

H.265/HEVC 4:2:0, 8-bit  
 H.264/AVC 4:2:0, 8-bit  
 Dynamic resolution adjustment

*Bitrates*

200 Kbps to 20 Mbps for HD  
 Constant Bitrate (CBR)  
 Variable Bitrate (VBR)

*Inputs*

SDI, HDMI

**AUDIO***Encoding*

AAC-LC

*Bitrates*

32 Kbps to 256 Kbps

*Mode*

Mono, Dual Mono, Stereo 2.0

*Density*

Up to 2 Stereo or 2 Mono

*Inputs*

Embedded (SDI, HDMI), Analog (L/R)

**NETWORK CONNECTIONS***Ethernet*

Gigabit Ethernet ports  
 - LAN, WAN  
 - portable satellite (BGAN, GX, Ka & Ku Band)

*Cellular*

With Haivision Quad CellLink  
 - 4x 3G/4G-LTE world-wide compliant modems  
 - 4x SIM slots  
 - Internal high efficiency antennas  
 - IPv4 and IPv6 compliant

*Transport Protocol*

SST over Cellular/Ethernet (bonding)  
 SRT over Ethernet

**ADVANCED FEATURES***Video Encoding*

Dual encoding for simultaneous Live & Record

*Streaming*

Sub second glass-to-glass latency (down to 500 ms)  
 AES encryption of live broadcasts  
 IP Data Bridge for using the device as a mobile router  
 Prioritize Network Links (user configurable)

*Recording*

Transport Stream and MP4 file formats  
 Automatic file forwarding

*Video Returns*

Full HD video return  
 Sub-second latency  
 AES encryption  
 Return feed generation

*User Interface and Operations*

Video and Audio level preview  
 Remote dynamic latency adjustment during a live broadcast  
 Automatic Live Start

*Audio*

Intercom/IFB

**INTERFACES**

1 x 3G-SDI input, 1 x 3G-SDI output (BNC)  
 1 x HDMI 1.4 input, 1 x HDMI 1.4 output  
 2 x RJ-45 Ethernet  
 1 x USB 3.0 (type-A)  
 1 x mini XLR for IFB/intercom headset  
 2 x mini XLR balanced (for analog audio)  
 1 x SD card slot

**CONTROL & MONITORING**

Embedded touch screen  
 Web UI from any browser  
 From Haivision StreamHub transceiver  
 From Haivision Manager

**POWER***Power Supply*

Dual DC input 18V (XLR input hot swap)

*Consumption*

30W max (24W to 28W typical)

**PHYSICAL***Dimensions (W x H x D)*

22.2 cm x 4.4 cm x 12.5 cm  
 (8.66" x 1.57" x 4.72")

*Weight*

Rack200: 1.22 Kg / 2.69 lbs  
 Rack300: 1.32 Kg / 2.91 lbs

*Operating Temperature*

-5°C to 45°C (23°F to 113°F)

**Software Version: 6.0**