

4K UHD & Multi-HD Encoder and Bonded Cellular Transmitter

The Haivision Pro460 is a quad-HD and 4K UHD mobile transmitter designed for live sports broadcasters and news gathering professionals who need to contribute pristine quality video from anywhere. The Pro460 offers secure and reliable bonded cellular transmission of multi-camera content over 5G networks with latency as low as 80 milliseconds, end-to-end.

With a host of advanced video processing features, the Pro460 can encode live video to HEVC and H.264, including in HDR, for high quality broadcast transmissions and low bandwidth consumption. Supporting up to four simultaneous camera inputs, the Pro460 keeps all the video and audio streams in sync for seamless camera switching, either on-prem or in the cloud.

To further optimize field resources, the Pro460 can be connected to network-based devices such as PTZ cameras and tally lights which can be remotely controlled from a central production facility using a Haivision StreamHub receiver. When connected to an external monitor the Pro460 can display low latency video returns including teleprompts and studio feeds along with a bi-directional audio intercom (IFB) for real-time communication between the field and production.

With its six globally compliant 3G/4G/5G modems and high efficiency patented antennas, the Pro460 can transmit live video over all types of bonded cellular links including public and private 5G networks. Empowering you to contribute live video from anywhere, the Pro460 can also transmit over WiFi, Ka and Ku satellite bands, and the public internet. Our Emmy® awarded SST Technology (Safe Stream Transport) offers dynamic network aggregation, adaptive packet retransmission (ARQ) and forward error correction (FEC) to ensure quality of service.

Available in a compact and portable enclosure, the Pro460 offers standard V-Mount or Gold-Mount plates for attaching rechargeable batteries and for direct mounting on professional cameras or inside a specially designed backpack.



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 Pro460 can reliably transmit live video over any network even with fluctuating conditions.

Main Functions

Premium Live Video up to 4K UHD The Haivision Pro460 offers the highest-quality video performance with HEVC encoding for pristine HD and UHD video transmission over mobile networks including 5G. Built on the two-time award-winning SST cellular bonding technology, the Pro460 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 video transmission supported by its 6 internal modems and antennas, the Pro460 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 Pro460 can also receive a high-quality HD feed from the production studio during a live broadcast or in standby mode. With sub-second latency streaming, Pro460 return feeds can be used for watching on-air programs, teleprompting information or confidence monitoring.

Record & Progressive Forward Record UHD/HD broadcast-grade quality video on an SD card and optimize your file forwarding time with progressive uploads while the live recording is still in progress. The Pro460's advanced recording and file forwarding enables fast and error-free video delivery over any mobile or 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*Cellular*

6 x 3G/4G/5G world-wide compliant modems
 IPv4 and IPv6 compliant
 Sub 6GHz bands
 SA (Stand Alone) and NSA (Non Stand Alone)
 Internal high efficiency antennas

Ethernet

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

Wi-Fi

Dual band Wi-Fi modem 802.11a/b/g/n/ac (2.4GHz and 5 GHz)
 - Client & Hot Spot modes
 - High-efficiency embedded antenna

Transport Protocol

SST over Cellular/Ethernet/WiFi (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
 Bluetooth or wired headset

Metadata

Closed Captions EIA/CEA/CTA-608/708
 SMPTE-12M timecode passthrough
 SMPTE-2038 (transparent carriage of ancillary data)
 Geolocation (GPS, Galileo, Glonass, and Beidou)

INTERFACES

1 x 12G/3G-SDI input and 3 x 3G-SDI inputs (BNC)
 1 x 12G-SDI output (BNC) – 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)
 6 x micro SIM slots
 1 x mini jack for IFB/intercom headset
 1 x micro SD card slot

CONTROL & MONITORING

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

POWER*Power Supply*

DC input 18V
 External battery with V-mount or Gold-mount plates

Consumption

4 hours with battery (90 Wh)

PHYSICAL*Dimensions (W x H x D)*

26,6 cm x 8,4 cm x 12,5 cm (10.47" x 3.30" x 4.92")

Weight

1.5 Kg / 3.3 lbs

Operating Temperature

-5°C to 45°C (23°F to 113°F)

Software Version: 4.0

Live HD Video Over Bonded Cellular Networks

The Haivision Pro3 series of transmitters are designed for live sports, entertainment, and news gathering professionals contributing high quality video content from any location. Supporting a wide range of input and output interfaces, the Pro3 Series is a versatile real-time encoder and mobile transmitter delivering pristine quality video at very low latency. With H.265/HEVC live content can be encoded with low bandwidth consumption while the H.264/AVC support ensures compliancy with all types of broadcast production workflows.

Haivision Pro3 transmitters include globally compliant cellular modems with a patented custom antenna array: up to up to six 3G/4G/5G or eight 3G/4G modems can be supported for cellular bonding with the Emmy award winning SST protocol.

When operating in environments with challenging cellular network connectivity, Pro3 transmitters can leverage external antennas and modems including the passive Haivision Quad or active (embedded 3G/4G modem) Haivision Quad CellLink. Built-in Wi-Fi and Dual Gigabit Ethernet can also be used to stream over LAN/WAN, while BGAN, GX and Ka band satellite bands are also supported.

Powerful but energy efficient, the Pro3 series can operate up to 4 hours with an external battery, making it the ideal companion for on-the-go video professionals that need a robust and reliable solution for high quality video broadcasting.



Simple

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



Versatile

The Haivision Pro3 Series offers standard V-Mount or Gold-Mount plates for direct mounting on professional cameras or for easy transport with its specially designed backpack.



High Performance

By implementing a low latency H.265/HEVC hardware encoder in a compact design enclosure, the Pro3 Series enables video professionals to provide seamless and pristine video for news and events coverage.



Any Network

Leveraging the Emmy® award winning SST and SRT protocols, the Pro3 Series can reliably transmit high-quality broadcast contribution video over bonded cellular and IP networks with fluctuating conditions.

	Pro360-5G	Pro380	Pro340
Embedded cellular modems	6	8	4
Cellular networks	5G/4G/3G	4G/3G	4G/3G

Main Functions

Live Video Encoding Broadcast pristine quality live video over bonded IP networks with low latency: 3G/4G/5G, 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 Pro3 unit 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 4 Channels

Inputs

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

NETWORK CONNECTIONS*Cellular*

6 x 3G/4G/5G, 4 or 8 x 3G/4G world-wide compliant modems with
- Internal high efficiency antennas
- External high efficiency Haivision Quad antenna array
IPv4 and IPv6 compliant

Ethernet

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

Wi-Fi

Dual band Wi-Fi modem 802.11a/b/g/n/ac (2.4GHz and 5 GHz)
- Client & Hot Spot modes
- High-efficiency embedded antenna

Transport Protocol

SST over Cellular/Ethernet/WiFi (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
Bluetooth or wired headset

Metadata

Geolocation (GPS and Galileo)

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)
4/6/8 x micro SIM slots
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*

DC input 18V (XLR input hot swap)
External battery with V-mount or Gold-mount plates

Consumption

4 hours with battery (90 Wh)

PHYSICAL*Dimensions (W x H x D)*

25,6 cm x 8,4 cm x 12,5 cm
(10.07" x 3.30" x 4.92")

Weight

1,4 Kg / 3.09 lbs

Operating Temperature

-5°C to 45°C (23°F to 113°F)

Software Version: 6.0