

## 4K UHD Video Encoder and Bonded 5G Transmitter

The Haivision Falcon X2 is a broadcast encoder and mobile transmitter for low latency contribution of pristine quality video with resolutions up to 4K UHD over any network including both public and private 5G. With a rich set of professional broadcast features including video returns, two-way intercom, and video recording, the Falcon X2 can encode live video with HEVC and H.264, up to 4:2:2 10-bit and in HDR, for high quality broadcast transmissions with low bandwidth consumption. Whether for sports, news, or entertainment, the Falcon X2 is the ideal solution for contributing live video with as little as 100ms of latency to on-prem and cloud production workflows.

Falcon X2 features two globally compliant 4G/5G modems with 2x2 MIMO technology for transmitting broadcast quality video over a secure and reliable bonded network connection. For situations that require even greater bandwidth and signal strength, two external modems can be attached by USB. With support for Wi-Fi 6 with MIMO, the Falcon X2 can also transmit video over available Wi-Fi networks or be turned into a local access point for other devices needing internet connectivity in field. Leveraging the Emmy® Award-winning SST protocol (Safe Stream Transport), Falcon X2 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 and featuring a built-in rechargeable battery, the Falcon X2 offers standard V-Mount or Gold-Mount plates for direct mounting on professional cameras or inside a specially designed backpack. Easily configure video settings and live broadcast transmissions with the built-in touch screen, web UI, or from the Haivision Hub 360 cloud-based master control solution.

To optimize field resources from a production studio, the Falcon X2 can be connected to IP devices using the Data Bridge feature and a Haivision StreamHub receiver to remotely control tilt and zoom, camera shading, and tally lights. When connected to an external monitor it 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.



### Simple

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



### Versatile

Encode and transmit video up to 4K UHD with 10-bit pixel depths, 4:2:2 chroma subsampling, and in HDR.



### High Performance

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



### Any Network

Reliably transmit live video over any network with our Emmy® Award-winning SST and SRT protocols.

## Main Functions

**Premium Low Latency Video up to 4K UHD** The Haivision Falcon X2 offers HEVC and H.264 video encoding and pristine 4K UHD, HD and HDR video transmission over bonded cellular and WiFi networks. Built on the two-time award-winning SST cellular bonding technology, the Falcon X2 can transmit live video with bitrates up to 80Mbps for high-quality broadcast contribution.

**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 Falcon X2 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, Falcon X2 return feeds can be used for on-air programs, teleprompting information or confidence monitoring.

**Record & Progressive Forward** Whether you are broadcasting live or capturing footage for post-production, the Falcon X2 can record 4K UHD and up to 24 hours of HD video with its internal memory capacity. The Falcon X2's advanced recording and file forwarding enables fast and error-free video delivery over any mobile or IP network. Progressive uploading allows you to optimize your file forwarding time while your recording is underway.

**Ideal for Remote Production** Keep your video feeds in sync when broadcasting from several transmitters simultaneously. The Falcon X2 includes time stamps within the Haivision SST stream enabling production staff to easily switch between different camera feeds with frame accurate precision. Combined with ultra-low latency transmission, Haivision mobile transmitters are designed to meet the high standards needed for premium broadcast productions, especially live sports.

**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

*Encoding:*

- H.265/HEVC 4:2:0 | 4:2:2, 8-bit | 10-bit
- H.264/AVC 4:2:0, 8-bit
- SDR and HDR - HLG or PQ (ST 2084)
- Dynamic resolution adjustment

*Bitrates:*

- HD: 300 Kbps to 20 Mbps
- UHD: 300 Kbps to 80 Mbps
- Constant Bitrate (CBR)
- Variable Bitrate (VBR)

*Inputs:*

- 12G SDI
- HDMI 2.0

**AUDIO**

*Encoding:*

- AAC-LC

*Bitrates:*

- 32 Kbps to 256 Kbps

*Mode:*

- Mono, Stereo

*Density:*

- Up to 4 Stereo or 8 Mono

*Inputs:*

- Embedded over SDI
- Embedded over HDMI

**NETWORK CONNECTIONS**

*Cellular:*

- 2 x 3G/4G/5G world-wide compliant modems
- Sub 6GHz bands
- SA (Standalone) and NSA (Non Standalone)
- Internal high efficiency antennas (2 x 2 MIMO)
- Add up to two external USB modems or two Haivision Quad CellLink antennas for a total of 8 additional modems

*Ethernet:*

- 1 x Gigabit Ethernet port
- LAN, WAN
- Portable satellite terminal (Ka, Ku)

*Wi-Fi:*

- Wi-Fi 6/6E (2.4GHz, 5 GHz and 6 GHz)
- 802.11a/b/g/n/ac/ax
- Internal high efficiency antennas (2 x 2 MIMO)
- Client & Hot Spot modes

*Transport Protocol*

- SST over Cellular/Ethernet/Wi-Fi (bonding)
- SRT over Ethernet

**INTERFACES**

- 1 x 12-G SDI input
- 1 x HDMI 2.0 input
- 1 x HDMI 2.0 output for video return
- 1 x Gigabit RJ-45 Ethernet
- 2 x USB 3.0 (type-A), 1 x USB 3.0 (type-C)
- 2 x micro SIM slots
- 1 x mini jack for IFB/intercom headset

**ADVANCED FEATURES**

*Video Encoding:*

- Video downscaling at a fixed resolution

*Streaming:*

- Sub-second glass-to-glass latency (as low as 100ms on private 5G network, and 500ms for other networks)
- 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 with AES encryption
- Sub-second latency

*Video Recording:*

- Recording to internal memory (128 GB)
- Standalone or simultaneous recording during live broadcast
- Transfer of files during or after recording

*User Interface and Operations:*

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

*Intercom:*

- 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)

**CONTROL & MONITORING**

- Embedded touch screen
- Web UI from any browser
- From Haivision Hub 360 and StreamHub transceiver

**POWER**

*Power Supply:*

- Internal battery for several hours of live broadcast
- USB-C input for
  - charging the internal battery
  - powering the device via an AC/DC adapter (45 W min)
  - power the device via a D-TAP cable + external V/G-Mount battery attached to the device.

**PHYSICAL**

*Dimensions (W x H x D):*

- 20,4 cm x 8,3 cm x 11,3 cm (8.02" x 3.26" x 4.46") with V-Mount
- 20,4 cm x 7.6 cm x 11,3 cm (8.02" x 3.00" x 4.46") with Gold Mount

*Weight:*

- 1.2 Kg / 2.6 lbs

*Operating Temperature:*

- 5°C to 45°C (23°F to 113°F)

Falkon X2 is available as two models, GO and Ultra, sharing the same hardware platform. A Falkon X2 GO can be upgraded to the Ultra model by applying a software license.

Features	Falkon X2 GO	Falkon X2 Ultra
Broadcast operations	Live	Live, Record, File Forward
Video resolution	HD	HD, UHD
Video format	4:2:0 8-bit SDR	4:2:0 and 4:2:2, 8-bit and 10-bit SDR & HDR
Audio channels	4	8
Intercom (wired and Bluetooth)	•	•
Ultra Low latency mode (100ms)		•
Video return		•
IP Data Bridge (PTZ remote control, etc)		•
Ancillary Data		•