



FEATURES

Up to 50% bit-rate reduction compared with H.264

Transmission of 4x simultaneous HD signals up to 1080p50/59 (QuadSync mode)

Transmission of true 4K UHD signals with HDR

Ultra-low Latency for live applications

IP and DVB-ASI in/out

Legacy H.264 and MPEG2 Encoding also supported*

BENEFITS

Reduce Space-segment costs by up to 50%

Reduced hardware costs - encodes 4x HD signals simultaneously

Software upgrade to 4K/UHD

Feature-rich interfaces and options

Available as Codec for operational flexibility

Sapphire HEVC Encoder

Sapphire HEVC is a broadcast quality H.265 Encoder, offering exceptional compression ratios on video resolutions up to 4K UHD. The Sapphire Encoder can be easily integrated into existing contribution links, SNG trucks or flyaway systems to provide a cost-effective upgrade to the latest encoding technology.

Sapphire HEVC is a feature-rich family of professional broadcast encoders and decoders. Sapphire employs the latest HEVC compression engines, offering significant bitrate savings over traditional H.264 solutions thus reducing bandwidth costs. HEVC standards also support the new 4K UHD formats required for contribution.

Latency is critical in many broadcast applications and the Sapphire encoder is built to minimise delay without compromising quality. In Ultra-low latency mode, the 60ms end-to-end delay (70ms in 4K) makes the Sapphire solution suitable for all live events.

The Sapphire Codec range offers HD HEVC and H.264 encoding as standard and is software upgradeable (via licence key) to 4x HD encode (up to 1080p) and 4K UHD.

Sapphire's unique QuadSync mode encodes 4x non-synchronous HD signals of differing formats (frame-rate must be the same) and at the decode side, outputs them converted to a single production format and fully synchronised.

Each input can support 2 stereo pairs of embedded audio. Compressed streams are available as IP or on DVB_ASI outputs for interoperability.

The Encoder connects to existing transmission equipment via a single ASI co-ax cable for easy upgrade.

Connectors

HDSDI 3G 1-4	4x BNC Female 75 ohm
ASI IN	BNC Female 75 ohm
ASI OUT	BNC Female 75 ohm
Audio In	6 way Hirose HR10 Female
Network	RJ45
AC In	IEC

Video Encoder

Profiles	4K UHD. 4:2:2/4:2:0, 8/10-bit 2160p / 23.98 / 24 / 25 / 29.97 / 30 / 50 / 59.94 / 60
	HD. 4:2:2/4:2:0, 8/10-bit 720p / 50 / 59.94 / 60 1080i / 50 / 59.94 / 60 1080p / 23.98 / 24 / 25 / 29.97 / 30 / 50 / 59.94 / 60
	SD 4.2.2/4.2.0 480i / 29.97 576i / 25
Bitrates	To 90Mb/s

Latency (if used with Sapphire Decoder)

Encoder + Decoder	60ms (70ms in 4K mode) with ULL option
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Audio Encoder

Format	Embedded
Encoder	MPEG-1 Layer2, AAC-LC (Linear PCM in Ultra-Low Delay) Dolby E pass through
Quantity	4 pairs (8 pairs MPEG or Linear PCM)

Analogue Audio

Format	2 pairs line / mic level
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Stream Inputs / Outputs

DVB_ASI	Transport stream to 90Mb/s
IP Interface	10/100/1000 base-T
IP Stream Format	Unicast / Multicast / UDP / RTP / SRT
IP Stream Rate	30Mb/s standard (100Mb/s with HEVC-IP-E)
FEC	ST 2022-1

HDR/WGC

We support	Rec. ITU-R BT.2100-2 (PQ and HLG) Rec. ITU-R BT.2020
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Indicators

Display	Hi-brightness OLED
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Control

Local	Joystick and menu screen
Remote	IP web browser Control RS232 (module only)

Dimensions

Size (WxDxH)	210mm x 352mm x 1RU
Weight	1.9Kg
Mounting	Side-by-side mount kit available as an option

Power

AC In:	90-255VAC 15W @ 4K Encoding
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Order Codes

SAPPH-CB	Sapphire H.264 Camera Back Module SML
SAPPH-C-RACK	Sapphire H.264 CoDec Rack Unit
SAPPH-E-RACK	Sapphire H.264 Encoder Rack Unit
SAPPH-D-RACK	Sapphire H.264 Decoder Rack Unit
SAPPH-2PSU	Dual PSU Upgrade (rack-mount only)
SAPPH-BISS	BISS Option (HW)
SAPPH-IP-EIP	IP Streaming High Rate (>30Mb/s) (HW)
SAPPH-IP-DIP	IP Decoding (HW)
LIC-HEVC	HEVC License
LIC-LOWD	Low Delay (Encoder Only)
LIC-4K	4K Licence
LIC-QUAD	QuadSync (4x HD Inputs/Outputs)
LIC-PSF	PSF Video Formats
LIC-CODEC	Software License for Codec

*** Development – please check for availability**

