

The arqStream is an HD H.264 and MPEG-2 encoder, decoder and transcoder. It can operate bi-directionally and supports ARQ and FEC error correction to enable reliable contribution over the public internet. It supports 3G-SDI, HD-SDI, SDI, ASI, HDMI and IP input/output and features can be incrementally licensed.

The arqStream supports up to 1080p50/60 and 4 audio channels encoding, decoding and transcoding. It can be licensed as SD, 1080i/720p or 1080p and as either an encoder, decoder or bi-directional encoder/decoder. It supports 3G-SDI, HD-SDI, SDI, ASI, HDMI and IP input/output.

The arqStream has a unique patented Automatic Retransmission Request (ARQ) feed-back based error correction which allows reliable delivery over best effort networks such as the public internet. ARQ has similarities to TCP in that it informs the encoder if a packet has been lost during transit to the decoder, and requests a replacement to be sent. The principal benefit of ARQ video transmission over TCP video transmission is that TCP transmits an acknowledgement after each packet is received, where ARQ only transmits a negative ACK when a packet has been lost, minimising bandwidth overhead.

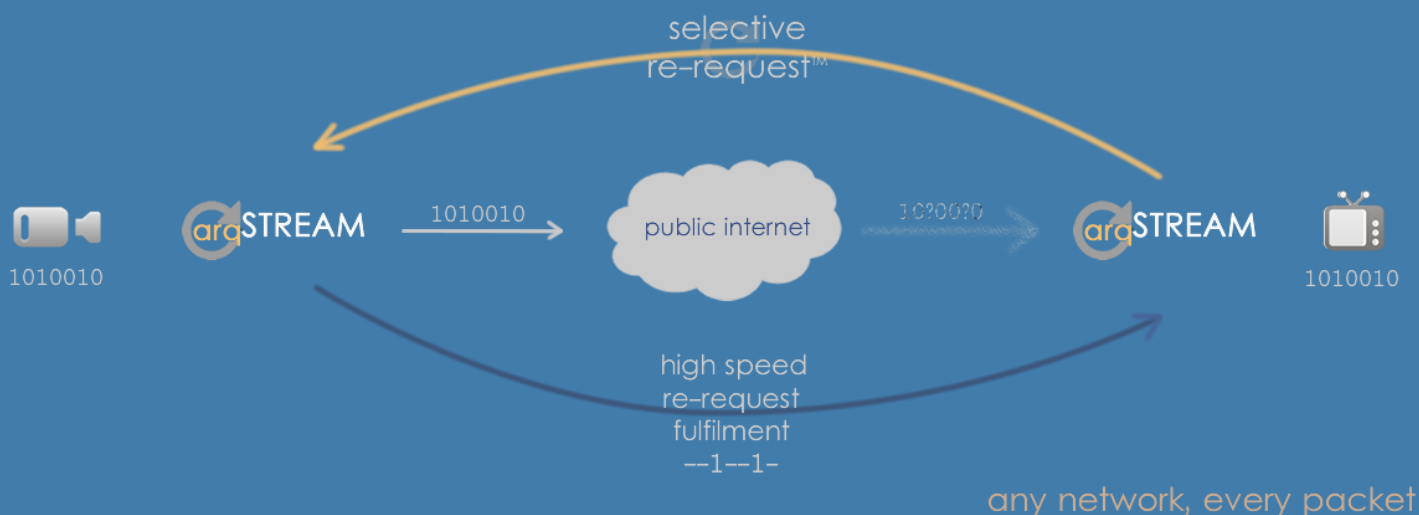
The arqStream opens up opportunities to leverage low cost high bandwidth public internet links such as SDSL and VDSL for high quality site to site contribution, remote news gathering and live event coverage.

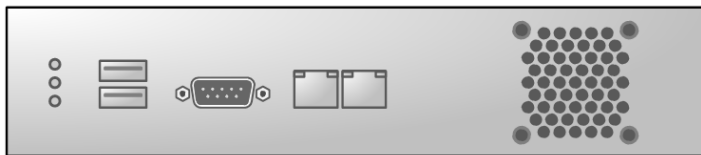
The device can be powered by 240VAC or 6 - 18VDC for flexibility.



- High quality HD H.264 video compression
 - Video pre-filtering
 - High, Main and Baseline Profiles up to Level 4.1
- Support for MPEG-2 compression
- ARQ & ProMPEG Forward Error Correction (FEC)
- Bi-directional encoding/decoding
- Low latency mode - less than 400ms end-to-end
- Video formats up to 1080p50/60, PAL & NTSC
- SDI, HDMI, ASI and IP input/output
- Supports CBR & VBR bit rates from 200kbps to 20Mbps
- Up to 4 audio channels (2 stereo pairs)
- Compact encoder and decoder ½ width - 1RU
- AC and DC power inputs
- User definable GOP structure and length
- Optional licensable features; 1080i, 1080p, Bi-Dir, Dual Enc
- Low power consumption; 14 watts when encoding
- MPEG-1 Layer II, MPEG-2 AAC, MPEG-4 AAC
- Up & down scaling and frame rate conversion

how it works





Video/Audio Inputs

- Input:** 1 x 3G / HD-SDI / SDI / ASI
(SMPTE 425M (A&B), 424M, 292M, 259M, ASI)
1 x HDMI (1080i & 720p only)
- Output:** 1 x 3G / HD-SDI / SDI / ASI
(SMPTE 425M (A&B), 424M, 292M, 259M, ASI)
1x HDMI (1080p, 1080i, 720p, 480i & 576i)
- Connectors:** 2 Female BNC (SDI / DVB-ASI)
2 HDMI

Video Encoding / Decoding / Transcoding

- Video Encoding:** MPEG-4 AVC / H.264
- Profile up to Level 4.1
- High, Main and Baseline Profiles
MPEG-2 Main Profile
Constant bit rate or Variable bit rate
- Chroma Sampling:** 4:2:0
- Bit Rate:** 128 Kbps to 20 Mbps
- Transcoding:** H.264 ↔ MPEG-2, H.264 ↔ H.264
- Full-Duplex:** Bidirectional, simultaneous HD or SD encoding and decoding

Audio Encoding / Decoding / Transcoding

- Audio Encoding:** MPEG-1 Layer II, MPEG-2 AAC, MPEG-4 AAC
- Sample rate:** 16, 32, 44.1, & 48 KHz
- Bit rate:** 16 Kbps (mono) to 384 Kbps (stereo)
- Audio Channels:** Up to 4 mono-audio channels (2 stereo pairs),
MPEG1 Layer II ↔ MPEG4 AAC
- Transcoding:** AC3 Pass-through

IP Encapsulation

- IP Encapsulation:** MPEG-2 Transport Stream over
RTP/UDP/IP, UDP/IP (SMPTE 2022-1/2)
- IP Bitrate:** 160 Kbps to 20 Mbps, 15Mbps w/ARQ
- Error Correction:** ARQ (feedback-based)
Forward Error Correction (ProMPEG FEC)
(FEC SMPTE 2022 FEC annex B only)



Video Resolutions

- SD Video:** 625 lines, 25 frames/s (576i)
525 lines, 29.97 frames/s (480i)
- HD Video:** 1080p60/50/30/25/24/23.98
1080i60/50 and 720p60/50

Network Interfaces

- Networking ports:** 2 Gigabit Ethernet, 100/1000Base-T
on 2 RJ-45 connectors
- Protocols:** IEEE802.3 Ethernet
RTP, IPv4, TCP/UDP, IGMP v3
- External storage:** Flash & hard drives via 2 USB
connectors and NFS via IP

Control & Management

- Type:** Gigabit Ethernet, 100/1000Base-T
- Features:** Web-based HTTP GUI
SNMP traps
- Connector:** RJ45
- Maintenance Port:** Two RS232 9 pin D-SUB

Physical & Power

- Input Voltages:** 120 - 240V AC 50/60Hz or 7 - 20V DC
- Input Currents:** 150 - 75mA for AC or 3.0 - 1.0A for DC
- Input Power:** 18W
- DC Connector:** 2.5mm I.D. x 5.5mm O.D. x 9.5mm Female
- Chassis:** 209 x 182 x 44 mm (WxDxH)
Two units in 19" 1RU rack space
- Installation:** 19" 1 RU rack mounting kit

Environmental Conditions

- Operating temperature:** 0°C to +55°C
- Storage Temperature:** -20°C to +70°C
- Relative Humidity:** 5% to 95% (non condensing)
- DC Connector:** 2.5mm I.D. x 5.5mm O.D. x 9.5mm Female

Compliance

- CE:** 73/23/EEC (Low voltage equipment) 89/336/EEC
(Electromagnetic compatibility)
- Safety:** IEC60950 and EN60950
- EMC:** EN55022, EN55024, EN6100-3-2

Part#	Description
ARQS-Appliance	ARQStream appliance. SD encode, decode or transcode. SDI & HDMI Input and Output. ARQ & FEC.
ARQS-HD-1080i	ARQStream license for 720p and 1080i encode, decode or transcode.
ARQS-HD-1080p	ARQStream license for 1080p, requires ARQS-HD-1080i.
ARQS-Duplex	Bi-directional license for simultaneous encode and decode for ARQStream.
ARQS-Ext-Warranty	Additional 1 year warranty for ARQStream.