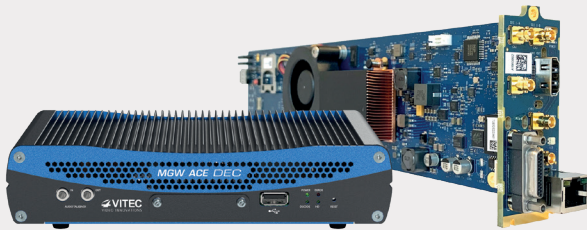


# MGW Ace Decoder

Professional-grade Low Latency 4K HEVC, H.264 & MPEG-2 Decoder



The MGW Ace Decoder is available either as a portable appliance featuring a robust enclosure, perfectly suited for field use, or as an openGear card for easy integration within production studios and broadcast facilities. Both product versions provide best-in-class video quality over rich and industry-standard audio/video connectivity.

## Broadcast quality, low latency and reliable decoding solution for demanding professional applications

The MGW Ace Decoder is a single channel multi-codec decoder that delivers reliable, broadcast-quality decoding of HEVC, H.264 or MPEG-2 streams up to UHDp60 4:2:2 10 bits (respectively Main422 10P@L5.1, Hi10@L4.2 and HL@HP) with HDR support.

### High-quality video and versatile connectivity

The MGW Ace Decoder provides pristine video quality and versatility with its high-end video scaling, frame sampling and de-interlacing for any stream to any output resolution or frame rate. It offers a wide range of video connectivity with 12G-SDI, HDMI2.0, SD-SDI and composite outputs that can be activated simultaneously. It delivers audio as embedded in SDI/HDMI as well as separate over analog balanced or unbalanced stereo audio and digital AES outputs. IP feeds can be received from two Ethernet ports to match any network topology (each port is configurable as management and/or streaming ports) or from the DVB-ASI input.

### Features & Benefits

- HEVC, H.264 & MPEG-2 low latency decoding of UHD/HD or SD IP feeds
- Broadcast quality decoding up to 4:2:2, 10 bits with HDR support
- Ultra low latency streaming down to 16ms glass-to-glass
- Reliable, low latency stream delivery with built-in Zixi™, SRT, RIST and ProMPEG stream protection
- Rich, industry-standard video and audio output interfaces to match any setup
- Time-synchronised playback across several decoders
- Closed captioning and DVB-ASI support
- Audio Talkback / IFB for easy communication between teams
- Compact portable design with 19" 1RU rack mount kit option
- Available as a portable appliance or openGear card

## Applications

- DSNG contribution decode over satellite, cellular networks and more
- Remote / At Home production (REMI) over dedicated transmission links or the Internet
- Point-to-point live contribution on private or public networks
- Low latency point-to-point contribution over the Internet using Zixi™ or SMPTE 2022 ProMPEG
- Situational awareness and Full Motion Video (FMV) display on video walls and monitors
- HEVC, H.264 or MPEG-2 IP feed monitoring over SDI / HDMI or Composite
- AV over IP using Ultra Low Latency Mode (ULL)

## Optimal Quality of Service

The MGW Ace Decoder is designed to always provide the best possible viewing experience. Shipping with Zixi™, SRT, SPRINT, RIST and SMPTE 2022 Pro-MPEG streaming protection technology included, the appliance protects video, audio and metadata on networks with up to 30% packet loss or data corruption. When paired with the MGW Ace Encoder for point-to-point applications, the solution provides bandwidth efficient, artefact-free video streaming over any network, including the Internet.

With its stream forwarding feature, the MGW Ace Decoder is able to decode the HEVC or H.264 stream over its baseband video outputs while delivering the stream for IPTV distribution within a private LAN / WAN network. Additionally, the Ace Decoder provides industry-standard SMPTE 2022 ProMPEG error correction technology for compatibility with other encoders. It offers flexible connectivity options with H.264 and MPEG-2 backward compatibility.

## Future-proof solution

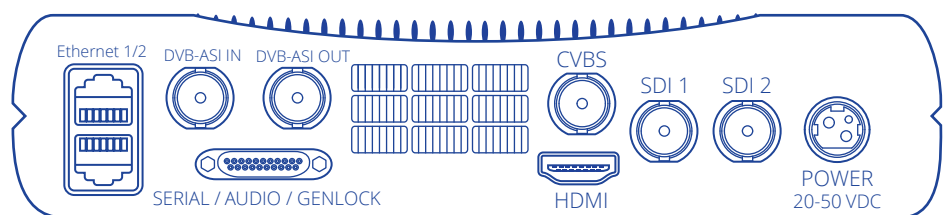
Due to its flexible FPGA architecture, the MGW Ace Decoder is a future-proof solution that allows you to stay ahead of the game.

## Get the best of your team in the field

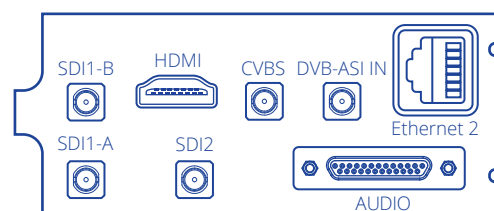
The MGW Ace Decoder IFB/Talkback feature provides an easy communication path between remote teams, removing the need for mobile phones.

## Rear Panel Interfaces

### MGW Ace Decoder



### MGW Ace Decoder OG



## Technical Specification

### Input Video Decoder - HEVC, H.264 & MPEG-2

- MPEG-H HEVC (ISO/IEC 23008-2)
  - Profile/Level: up to Main422 10@L5.1 High Tier
  - Ultra Low Latency mode (licensed)
  - Colour sampling / Bit-depth: up to 4:2:2 / 10 bits
  - Bit Rate: up to 100Mbps
  - Frame Rate: 1-60 fps.
  - Input Resolutions: from CIF up to 3840x2160
- MPEG-4 AVC/H.264 (ISO/IEC 14496-10 MPEG-4 AVC - Rec. ITU-T H.264)
  - Profile / Level: up to Hi10@L4.2
  - Colour sampling / Bit-depth: up to 4:2:2 / 10 bits
  - Bit Rate: up to 100Mbps
  - Frame Rate: 1-60 fps
  - Input Resolutions: from CIF up to 1920x1080
- MPEG-2 (ISO/IEC 13818 - ITU-T Rec. H.222.0)
  - Profile / Level: up to HP@HL
  - Colour sampling / Bit-depth: up to 4:2:2
  - Bit Rate: up to 100Mbps
  - Frame Rate: 1-60 fps
  - Input Resolutions: from CIF up to 1920x1080

### Input Audio Decoder

- AC-3 and E-AC-3 Decode
  - Up to x2 PIDs decoded simultaneously (under licence)
  - Stereo Downmix capability
- MPEG-4 AAC-LC (ISO/IEC 14496-3) and AAC-ELD Decode
- Up to x16 audio channels (x8 channels licensed)
  - Sample Rate: 48kHz
  - Bit Rate: 16-192kbs
- MPEG-1 Layer 2 (ISO/IEC 11172-3)
  - Up to x16 audio channels (x8 channels licensed)
  - Sample Rate: 48kHz
  - Bit Rate: 64-256kbs
- AC-3, E-AC-3 and Dolby-E Passthrough

### Encryption

- Real-time AES decryption for video, audio and metadata
- 128 and 256 bit encryption key support

### Network Interfaces

- 2x Gigabit Ethernet ports for management and/or streaming
- DVB-ASI input with loop through (SPTS / MPTS support)
- DHCP / Static IP address, IPv4 and IPv6 SSM, IGMPv3
- IEEE 802.1X - Extensible Authentication Protocol (EAP-MD5 and EAP-TLS)

### Network Protocols

- Support for SPTS and MPTS (SDT table support)
- UDP TS: MPEG Transport Stream over UDP
- RTP TS: MPEG Transport Stream over RTP
- RTP ES (RTSP): Elementary stream over RTP
- RTP ES (with SDP)
- Zixi™ Stream protection
  - Zixi™ P2P and Broadcaster modes
  - Zixi™ ABR streaming (Adaptive Bitrate)
- RTP TS with ProMPEG Forward Error Correction (SMPTE 2022)
- SRT (Caller, Listener and RendezVous)
- SPRINT
- RTMP
- HLS (MP4/TS, RFC8216)
- HTTPS, NTP, SSH, SAP, SDP

### Video Outputs

- 1 x 12G-SDI (SMPTE 2082-1), 2x on openGear board version
- 1 x 3G/HD-SDI/SD-SDI (SMPTE 259M-C, SMPTE 292M, SMPTE 274M, SMPTE 296M, SMPTE 424M, SMPTE 425M-A)
- 1 x HDMI 2.0
- 1x Composite (CVBS)

### Output Resolutions / Frame Rates

- 4096x2160p @ 60, 59.94, 50, 30, 29.97, 25, 24, 23.98 Hz (4K-DCI)
- 3840x2160p @ 60, 59.94, 50, 30, 29.97, 25, 24, 23.98 Hz (UHD)
- 2048x1080p @ 60, 59.94, 50, 30, 29.97, 25, 24, 23.98 Hz
- 1920x1080p @ 60, 59.94, 50, 30, 29.97, 25, 24, 23.976
- 1920x1080i @ 60, 59.94, 50 Hz
- 1280x720p @ 60, 59.94, 50, 30, 29.97, 25
- 720x480i @ 59.94 Hz (NTSC)
- 720x576i @ 50 Hz (PAL)

### Audio Outputs (Rear Panel)

- SDI embedded audio (PCM support)
- HDMI embedded audio (PCM support)
- 2x AES3 digital audio (BNC Female)
- 1 x analog unbalanced stereo audio, AC-coupled (RCA Female)
- 1 x Balanced analog stereo audio (XLR Male)

### Talkback Audio

- Analog unbalanced stereo audio, AC-coupled (Mini Jack) - 1x input and 1x output

## Ancillary Data Support

- Closed captions : CEA-708 / CEA-608
- Transport:
  - ANSI/SCTE 128, ATSC A/72 [CC & AFD in H.264/HEVC user data]
  - SMPTE RDD11 [Ancillary data in TS stream]
- AFD (SMPTE 2016)
- Timecode (SMPTE12M-2)
- KLV over SDI: STANAG4609 / MISB streams over SDI (VANC per SMPTE 336M)
- High Dynamic Range (HDR) - SDI:
  - HLG (ITU-R BT.2100) to SDI (SMPTE ST 2108)

## Management

- Secure web-based remote management interface (HTTPS), password protected
- Custom SSL certificate loading capability
- Customisable notice and consent login banner
- Dashboard with detected channel characteristics description and active outputs
- Streaming statistics for easier configuration and enhanced quality of service
- System and channel event logging
- Autostart mode recovers saved configuration after power cycle
- Remote firmware and software upgrade capability via browser and command line
- Easy-to-use HTTPS Rest API for control and status monitoring
- Status LEDs for power, network activity, error and streaming indications
- System discovery to retrieve MGW Ace Encoder IP address on a network

## Compliance

- FCC Part 15, Class A
- CE
- ICES-003
- RoHS

## Environment / Regulation

- Operating Temperature: 0°C ~ 50°C (32°F ~ 122°F)
- Relative Humidity: 5% ~ 95% (non-condensing)
- Power Input (MGW Ace Decoder): 20-50VDC
- Power consumption (Typical): 22W
- MTBF: Ground - 32.98 years, Airborne Inhabited Cargo - 16.40 years (as per MIL-HDBK-217F, 20°C, Operation time 100%)
- Not controlled under ITAR
- TAA Compliant

## Physical

- MGW Ace Decoder
  - Dimensions: 42.4 mm H x 202 mm W x 117.5 mm D (1.65" H x 7.95" W x 4.60" D)
  - Weight: 1.1kg (2.40lb)
  - Enclosure: Industrial-grade, aluminum case with mounting holes for seamless installation
  - Optional rack-mount kit for standard 1RU 19" wide racks
- MGW Ace Decoder OG
  - Compatible with OGX and OG3 openGear frames
  - Full Rear I/O module (2 slots) for up to 10 cards within a 2RU openGear chassis

## Advanced Features

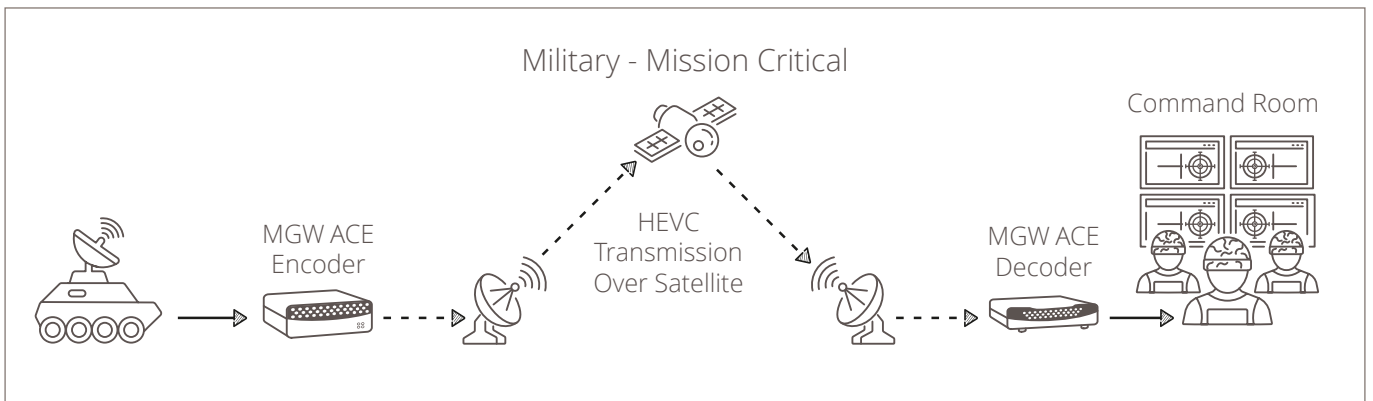
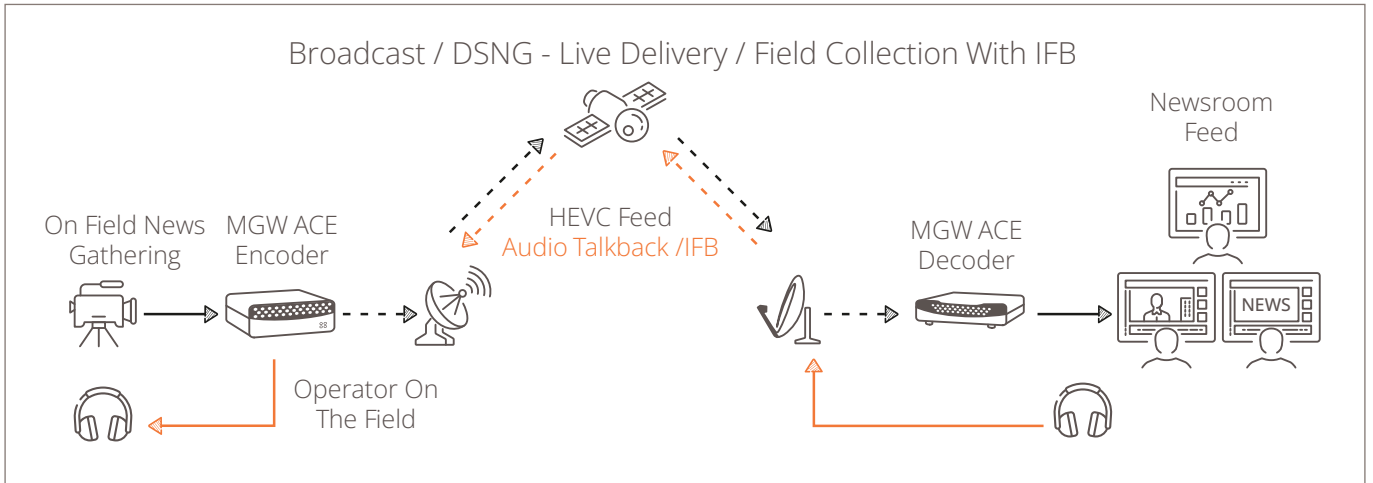
- Any feed resolution/frame rate to any output resolution frame
- Simultaneous HD and SD video outputs respectively over SDI/HDMI and SD-SDI/Composite
- Time-synchronised playback: synchronise the playback of multiple independent streams across several MGW Ace Decoders
- PCR clock sync mode for reliable and stable latency decoding
- Stream forwarding feature: Decode Zixi™ / Pro-MPEG / UDP TS or DVB-ASI stream (HEVC or H.264) over baseband video while forwarding the stream for IPTV distribution
- Customisable image display on IP stream input loss or decoder stop
- Talkback feature for audio feedback (two-way communication)

## Ordering information (Part Number)

- 16647 – MGW Ace Decoder HD/SD (breakout cable included)
- 17597 – MGW Ace Decoder OG (main and rear I/O modules)
- 16732 – MGW Ace Decoder breakout cable
- 17620 – 4:2:2 licence
- 17621 – UHD HDR HEVC decode
- 17622 – x8 additional audio channels decode licence
- 17623 – ULL decode licence
- 17929 – KLV over SDI licence

# MGW Ace Decoder Use Cases

## Point-to-Point Use Case



## Point-to-Multipoint Use Case

