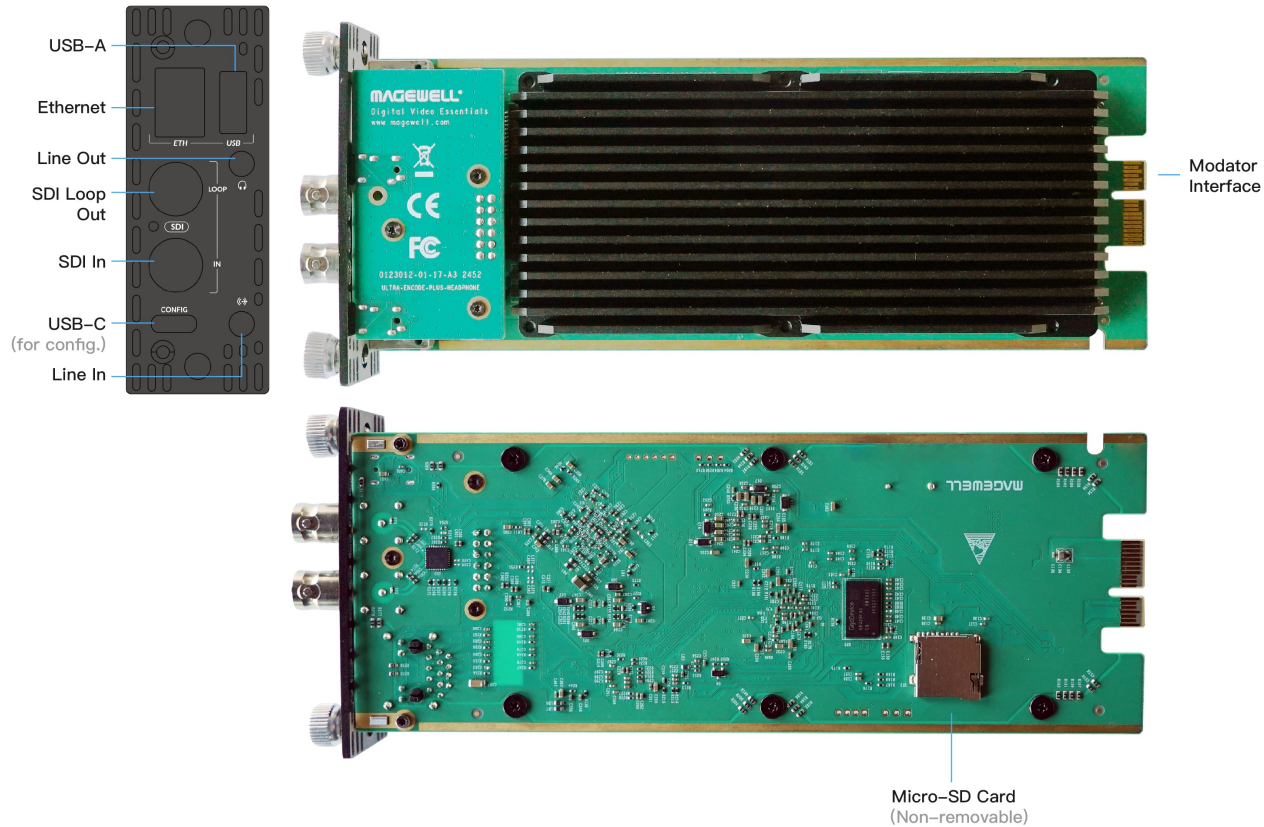# MAGEWELL®

Ultra Encode SDI Plus Module

A flexible & universal streaming and recording encoder

SKU: B31610000

Product Overview

Ultra Encode SDI Plus Module is a hot-swappable module to be installed in the Magewell Modator chassis. Its exceptional 4Kp30 encoding capability enables simultaneous multi-protocol streaming, file-based recording and advanced features. The module provides a higher-density product form factor and a scalable solution for live streaming, remote contribution, IP-based production and more.

Key Features

- Max input & loop through signal at 4096x2160 30fps
- Input & loop through 16-Channel SDI embedded audio
- Dual stream encoding profiles: main stream and sub stream up to 4096x2160 30fps
- Max encoding bitrate: 62Mbps (NDI® HX3), 32Mbps (Others)
- Encoding 8-channel AAC and audio channels mapping
- Natively stream to Facebook, Twitch, YouTube and WOWZA
- Supported streaming protocols: RTSP/RTMP/RTMPS/SRT Caller/SRT Listener/NDI® HX2/NDI® HX3/HLS/TS over UDP/TS over RTP/TVU ISSP
- Allow simultaneous 6 sessions over multiple streaming protocols
- Record to internal storage (128GB), external USB storage or network attached storage (NFS/CIFS)
- Supports live streaming and recording scheduler
- Configure through the touch screen of Magewell Modator chassis, Web GUI or Control Hub

Technical Specifications

Revised on 24/03/2025

Input/Output Ports

- 1 x RJ45 1000Mbps Ethernet port
- 1 x USB Type-C port for configuration
- 2 x SD/HD/3G/6G BNC ports
  - 1 x Input
  - 1 x Loop-through
- 1 x 3.5mm LINE IN
- 1 x 3.5mm LINE OUT
- 1 x USB Type-A
- 1 x Micro-SD card slot
- 1 x Modator interface for connecting to Modator 2U (hot-swappable)

Input & Loop-through

- Video
  - Supports SD (ST 259)/HD (ST 292)/3Ga (ST 425)/3Gb (ST 425)/3Gb-DL(ST 425)/3Gb-DS (ST 425)/6G (ST 2081) standards
  - Typical resolution/frame rate of SDI input/loop-through signal:
    - 4096x2160p/3840x2160p 23.98/24/25/29.97/30
    - 2048x1080p/2048x1080i 23.98/24/25/29.97/30/47.95/48/50/59.94/60
    - 1920x1080p/1920x1080i 23.98/24/25/29.97/30/47.95/48/50/59.94/60
    - 1280x720p 25/29.97/30/50/59.94/60
    - 720x576 25p/50i (PAL SD)
    - 720x480 29.97p/59.94i (NTSC SD)
  - Color sampling: YCbCr 10-bit 4:2:2, YCbCr 10-bit 4:4:4:4, YCbCr 12-bit 4:2:2, YCbCr 12-bit 4:4:4
- Audio
  - SDI embedded audio input/output: 16-Channel, 24-bit, 192kHz sample rate
  - 3.5mm LINE IN audio input: 2-Channel, 24-bit, 192kHz sample rate
  - 3.5mm LINE OUT audio output: 2-Channel, 24-bit, 192kHz sample rate

Encoding Features

- Video
  - Bitrate:
    - NDI HX3: up to 62.0Mbps, down to 1.5Mbps
    - Others: up to 32.0Mbps, down to 256kpbs
  - Dual-stream encoding: main stream and sub stream
  - Main stream
    - Resolution/frame rate:
      - Follow input
      - 4096x2160p/3840x2160p 30/29.97/25/24/23.976/15/10/5
      - 2560x1440p/2048x1080p/1920x1200p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
      - 1920x1080p/1920x720p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
      - 1664x936p/1600x1200p/1600x900p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
      - 1440x1080p/1440x900p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
      - 1280x1024p/1280x960p/1280x800p/1280x720p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
      - 1024x768p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
      - 1024x576p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
      - 960x540p/800x600p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
      - 768x576p/720x576p/720x540p/720x480p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
      - 640x480p/640x360p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
      - 480x360p/480x270p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
    - Native CEA–608/608 over 708 captions
  - Sub stream
    - Supports enabling/disabling sub stream
    - Resolution/frame rate:
      - 1920x1080p/1920x720p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
      - 1664x936p/1600x1200p/1600x900p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
      - 1440x1080p/1440x900p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
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      - 480x360p/480x270p 60/59.94/50/30/29.97/25/24/23.976/15/10/5
  - H.264/H.265 (HEVC) Codec:
    - System timecode or RP–188 standard timecode for SEI Message setting
    - H.265 (HEVC) SEI message supports carrying interlacing signal mark

- Video aspect ratio conversion
- Image rotation: 0°, 90°, 180°, 270°
- Cropping
- Output 3D video
- Audio
  - Encode up to 8 audio streams, including 1 x 8-channel stream and 7 x 2-channel streaming
  - Supports mapping between source channels and encoded audio channels
  - Bitrate: 256/192/128/96/64/48/32/16 kbps
  - Output source embedded audio and line in through LINE OUT

Live stream

- Natively supports streaming to:
  - Twitch
  - YouTube (HLS/RTMP), publishing to timeline or a new event and setting "made for kids".
  - Facebook, enabling backup stream and publishing to timeline or a new event.
  - WOWZA over RTMP, adding token and publishing to timeline or a new event.
  - WOWZA over SRT, setting AES encryption (AES–128/192/256) and publishing to a channel or a new event.
- Supports streaming protocols:
  - RTSP
  - RTMP/RTMPS
  - SRT Caller/SRT Listener
  - NDI HX2/NDI HX3
  - HLS
  - TS over UDP/TS over RTP
  - TVU ISSP
- Supports streaming to 6 destinations simultaneously, containing 1 session of RTSP/SRT Listener/HLS/ISSP (if included), or 2 NDI HX2 sessions (if included)
- Supports 1 NDI HX3 sessions exclusively
- Supports specifying a video stream and an audio stream for each streaming session
- Supports live stream scheduler

Record

- Supports setting and managing recording function and tasks
- Supports recording to local storage (The supplied SD card of 128 GB)
  - Supports format and performance test
  - Automatically upload files to remote file storage platform including FTP server, Google Drive, and Dropbox
- Supports recording to external USB storage
  - Supported system format: FAT32, exFAT and NTFS
- Supports recording to network attached storage (NFS/CIFS)
  - Supported system format: NFS, CIFS
- Supports loop recording and normal recording
- Supports saving recording files in MP4, MOV or TS format
- Supports specifying a video stream and an audio stream for each recording task
- Supports customizing recording file name and prefix
- Supports splitting recording files by time
  - MP4, MOV: up to 4 hours
  - TS: no limit
- Supports exporting or downloading files through Web UI
- Supports recording scheduler

Web UI

- Register with Magewell Control Hub for remote centralized management
- Supports configuring and managing via Web UI
- View real-time device status
- Preview encoded video
- Set input sources
- Customize encoding parameters
- Manage streaming destinations, start/stop streaming, view streaming status
- Manage recording tasks and recorded files
- Set up to 8 overlays for each stream, including text, picture, and clock
- Update firmware
- Supports registering Magewell Control Hub for centralized management
- Supports Microsoft Edge/Firefox/Chrome/Safari/Opera web browsers
- Provides HTTP APIs

Network Connections

- Ethernet: 1x RJ45 port, 10/100/1000 Mbps Base-T
- 4G/5G USB modem (not supplied)
- USB Net

Storage

- Micro-SD card (supplied): 128GB
- USB flash drive (not supplied): FAT32, NTFS, exFAT
- NAS (not supplied): NFS/CIFS

Indicators

- Input signal:
    - On: locked
    - Off: unlocked

Power Consumption

- Max power consumption: 14.42W

Physical Specifications

- Form factor: 184.4mm (L) x 30.0mm (W) x 81.5mm (H)
- Weight: ≈322g

Working Environment

- Operating temperature: 0 to 45 deg C
- Storage temperature: –20 to 70 deg C
- Relative humidity: 5% to 90% non-condensing

Notice

Specifications are based on current hardware, firmware and software revisions, and are subject to change without notice.

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