

# Ultra Encode SDI Plus Technical Specifications

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## 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:
    - 4096x2160p/3840x2160p 23.98/24/25/29.97/30
    - 2560x1440p/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, YCbCr 12-bit 4:2:2, YCbCr 12-bit 4:4:4
- Audio
  - SDI embedded audio: 16-Channel, 24-bit, 192kHz sample rate
  - Audio from 3.5 mm LINE IN: 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:
      - 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
      - 1280x1024p/1280x960p/1280x800p/1280x720p 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
    - Up to 8 channels can be selected for mapping when SDI input carries more than 8 audio channels
    - Supports mapping between source channels and encoded audio channels
    - Contains 1 x 8-channel stream and 7 x 2-channel streams
  - 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 (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

- Access Web UI via PC and smartphone
- 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

## API

- Provides APIs for 3rd party control system

## Network Connections

- Ethernet: 1x RJ45 port, 10/100/1000 Mbps Base-T
- IEEE 802.3af PoE
- Wi-Fi: 802.11 a/b/g/n/ac, Station and AP modes supported
- 4G/5G USB modem (not supplied)
- USB Net

## Input/Output Ports

- 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
- 2 x USB Type-A

## Storage

- USB flash drive (not supplied): FAT32, NTFS, exFAT
- NAS (not supplied): NFS/CIFS

## Indicators

- LEDs indicating the status of power, input signal, streaming, Ethernet, Wi-Fi connection
- NDI tally lights (preview-green, program-red)

## Power Supply and Consumption

- DC 5V/3A
- Max power consumption: 8.72W

## Form Factor

- 106.6mm x 106.2mm x 25mm

## Accessories

- 1 x 5V Power Adapter
- 1 x USB Type A to Type B cable
- 1 x Wi-Fi Antenna
- 1 x T-bracket

## Screw Mounting Hole

- 2 x M3 threaded hole
- A standard 1/4"-20 socket provided by T-bracket

## Working Environment

- Operating temperature: 0 to 50 deg C
- Storage temperature: -20 to 40 deg C
- Relative humidity: 5% to 90% non-condensing