MAGEWELL

Ultra Encode SDI Technical Specifications

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

NDI$^®$ is trademark or registered trademark of Vizrt Group.

Revised on 17/01/2025

Input & Loop-through

- SDI
  - Supports SD (ST 259)/HD (ST 292)/3Ga (ST 425)/3Gb (ST 425)/3Gb-DL(ST 425)/3Gb-DS(ST 425) standards
  - Typical resolution/frame rate:
    - 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: 16-Channel, 24-bit, 192kHz sample rate
  - Audio from 3.5 mm LINE IN: 2-Channel, 24-bit, 192kHz sample rate

Encode

- Video
  - Bitrate: 16Mbps
  - Dual-stream encoding: main stream and sub stream
  - Main stream Resolution/frame rate:
    - 2048x1080p/1920x1200p 60/59.94/50/30/29.97/25/24/15/10/5
    - 1920x1080p/1920x720p 60/59.94/50/30/29.97/25/24/15/10/5
    - 1664x936p/1600x1200p/1600x900p 60/59.94/50/30/29.97/25/24/15/10/5
    - 1440x1080p/1440x900p 60/59.94/50/30/29.97/25/24/15/10/5
    - 1280x1024p/1280x960p/1280x800p/1280x720p 60/59.94/50/30/29.97/25/24/15/10/5
    - 1024x768p 60/59.94/50/30/29.97/25/24/15/10/5
    - 960x540p/800x600p 60/59.94/50/30/29.97/25/24/15/10/5
    - 768x576p/720x576p/720x540p/720x480p 60/59.94/50/30/29.97/25/24/15/10/5
    - 640x480p/640x360p 60/59.94/50/30/29.97/25/24/15/10/5
    - 480x360p/480x270p 60/59.94/50/30/29.97/25/24/15/10/5
  - Native CEA–608/608 over 708 captions
  - Sub stream
    - Supports enabling/disabling sub stream
    - Resolution/frame rate:
      - 1920x1080p/1920x720p 60/59.94/50/30/29.97/25/24/15/10/5
      - 1664x936p/1600x1200p/1600x900p 60/59.94/50/30/29.97/25/24/15/10/5
      - 1440x1080p/1440x900p 60/59.94/50/30/29.97/25/24/15/10/5
      - 1280x1024p/1280x960p/1280x800p/1280x720p 60/59.94/50/30/29.97/25/24/15/10/5
      - 1024x768p 60/59.94/50/30/29.97/25/24/15/10/5
      - 960x540p/800x600p 60/59.94/50/30/29.97/25/24/15/10/5
      - 768x576p/720x576p/720x540p/720x480p 60/59.94/50/30/29.97/25/24/15/10/5
      - 640x480p/640x360p 60/59.94/50/30/29.97/25/24/15/10/5
      - 480x360p/480x270p 60/59.94/50/30/29.97/25/24/15/10/5
  - 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
- Audio
  - 2-channel AAC audio
  - Bitrate: 256/192/128/96/64/48/32/16 kbps
  - Output source embedded audio and line in through LINE OUT

Streaming Features

- Natively support Facebook, Twitch and YouTube
- Supported streaming protocols: RTSP/RTMP/RTMPS/SRT Caller/SRT Listener/NDI HX2/HLS/TS over UDP/TS over RTP
- Allow simultaneous sessions over the same streaming protocol. Streaming protocols are as follows.
  - Up to 6 sessions of TS over RTP and TS over UDP simultaneously
  - Up to 6 sessions of SRT Caller and SRT Listener simultaneously, containing one SRT Listener session at most (max 8 clients simultaneously)
  - Up to 6 sessions of RTMP and RTMPS simultaneously
- Stream only 1 session of HLS, RTSP, or NDI HX2
- Specify streaming main stream or sub stream for each session

Live stream

- Natively supports streaming to:
  - Twitch
  - YouTube, publishing to timeline or a new event and setting "made for kids".
  - Facebook, enabling backup stream and publishing to timeline or a new event.
- Supports streaming protocols:
  - RTSP
  - RTMP/RTMPS
  - SRT Caller/SRT Listener
  - NDI HX2
  - HLS
  - TS over UDP/TS over RTP
  - TVU ISSP
- Supports sessions over the same streaming protocol, such as
  - Up to 6 sessions of TS over RTP and TS over UDP simultaneously
  - Up to 6 sessions of SRT Caller and SRT Listener simultaneously, containing one SRT Listener session at most (max 8 clients simultaneously)
  - Up to 6 sessions of RTMP and RTMPS simultaneously
- Supports streaming only 1 session of HLS, RTSP, or NDI HX2
- Supports specifying a video stream and an audio stream for each streaming session

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
- 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
- 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 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

LED Indicators

- LEDs indicating the status of power, input signal, streaming, Ethernet and Wi-Fi connection

Power Supply and Consumption

- DC 5V/3A
- Max power consumption: ~7.16W

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-bracke

Screw Mounting Hole

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

Working Environment

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