KILOVIEW®

AV over IP Trailblazer

Data Sheet

RE-3 4K Multi-interface NDI Encoding Card

RE-3-1.2（V1.21.0008-250627）

1 产品概述

RE-3 4K UHD Encoding Card is Kiloview's new-generation high-performance video encoding solution in a card form. Compared with the previous RE-1 and RE-2 models, RE-3 delivers a significant upgrade in processing power, offering stronger encoding performance, richer feature sets, and lower power consumption. With combined HDMI and SDI video inputs, RE-3 provides an excellent balance of capability, flexibility, and cost efficiency.

RE-3 supports video capture and encoding up to 4Kp30, while remaining fully backward compatible with 1080p, 720p, and multiple frame rates including 60/59.94/50/30/29.97/25/24/23.98 fps[1]. It supports H.264 (AVC) and H.265 (HEVC) encoding, as well as a wide range of IP streaming protocols such as NDI HX2, NDI HX3[2], SRT, RTMP/RTMPS, HLS, TS over UDP, RTP/RTSP, enabling both low-latency NDI HX workflows and long-distance SRT program delivery.

RE-3 is capable of outputting up to 8 concurrent main streams across different protocols, along with 2 additional sub-streams, enabling true multi-stream, multi-destination operation from a single device.

Audio can be extracted from HDMI, SDI, or USB, or sourced from the built-in 3.5 mm Line-In analog audio interface. HDMI, SDI, and USB each support up to 4 channels of embedded audio, with user-configurable channel selection, swapping, and mapping. Audio encoding supports formats such as AAC and G.711.

The card provides HDMI 1.4b, 3G-SDI, and USB video inputs[3]. Users can freely switch between HDMI, SDI, or USB as the video source, or combine HDMI and SDI inputs for mixed (composited) encoding output. For video sources at 1920×1080 or below, RE-3 supports dual-channel simultaneous encoding and IP streaming.

RE-3 supports Tally signaling and offers both local USB recording and NAS network recording, with output formats including .mov and .mp4. A single Gigabit Ethernet connection enables IP video transport, Tally signaling, PTZ camera control, and intercom communication.

With two USB 2.0 expansion ports, RE-3 supports USB storage, USB-to-serial adapters (RS-232/RS-485/RS-422), and USB audio devices, enabling recording, PTZ control, and voice communication.

As a key member of the Kiloview ecosystem, RE-3 integrates seamlessly with Kiloview KiloLink Server for centralized remote management and with Kiloview Intercom Server (KIS) for IP-based intercom and command workflows. Support for NDI HX allows users to quickly integrate into the NDI ecosystem and leverage both Kiloview and third-party NDI solutions.

2. Key Features

Comprehensive functionality, outstanding performance, multiple use cases in one device

1. Triple-input support via HDMI, SDI, and USB:
   - HDMI compliant with HDMI 1.4b, supporting up to 3840×2160p30 UHD video input
   - SDI compliant with SMPTE 424M (3G-SDI), backward compatible with SMPTE 292M (HD-SDI) and SMPTE 259M (SD-SDI), supporting up to 1920×1080p60 SDI input
   - USB compliant with UVC standard, supporting up to 1920×1080p60 video input
2. 4K UHD (HDMI) video encoding with selectable H.264 (AVC) or H.265 (HEVC) codecs:
   - H.264 supports Baseline / Main / High profiles, up to Level 5.1
   - H.265 supports Main profile, up to Level 5.0
3. High-quality interlaced-to-progressive (i2p) conversion, supporting smooth and high-quality encoding from 480i / 576i / 1080i sources
4. At resolutions 1920×1080 and below, supports dual-channel simultaneous encoding and IP streaming;
5. alternatively supports single-channel selection or mixed (Mix) encoding from dual inputs
6. Multi-channel audio de-embedding, channel selection, swapping, and mapping:
   - HDMI: up to 4 channels
   - SDI: up to 4 channels
   - USB: up to 4 channels
   - Also supports audio input via analog Line In
7. Supports multiple audio codecs including AAC, G.711, MP2, MP3, with up to four audio formats encoded simultaneously to meet diverse streaming protocol requirements
8. Supports logo, image, and text overlay, as well as video rotation, cropping, mirroring, and color adjustment
9. Supports NDI® HX, enabling efficient integration into the NDI ecosystem

10. Extensive IP streaming protocol support:
    SRT, RTMP/RTMPS (push), HLS (server or push), TS over UDP, RTP/RTSP, WebRTC, ONVIF, and future expandable protocols[4]
11. Supports up to 8 simultaneous IP streams, either using different protocols or the same protocol with different destinations, enabling true multi-stream, multi-purpose operation

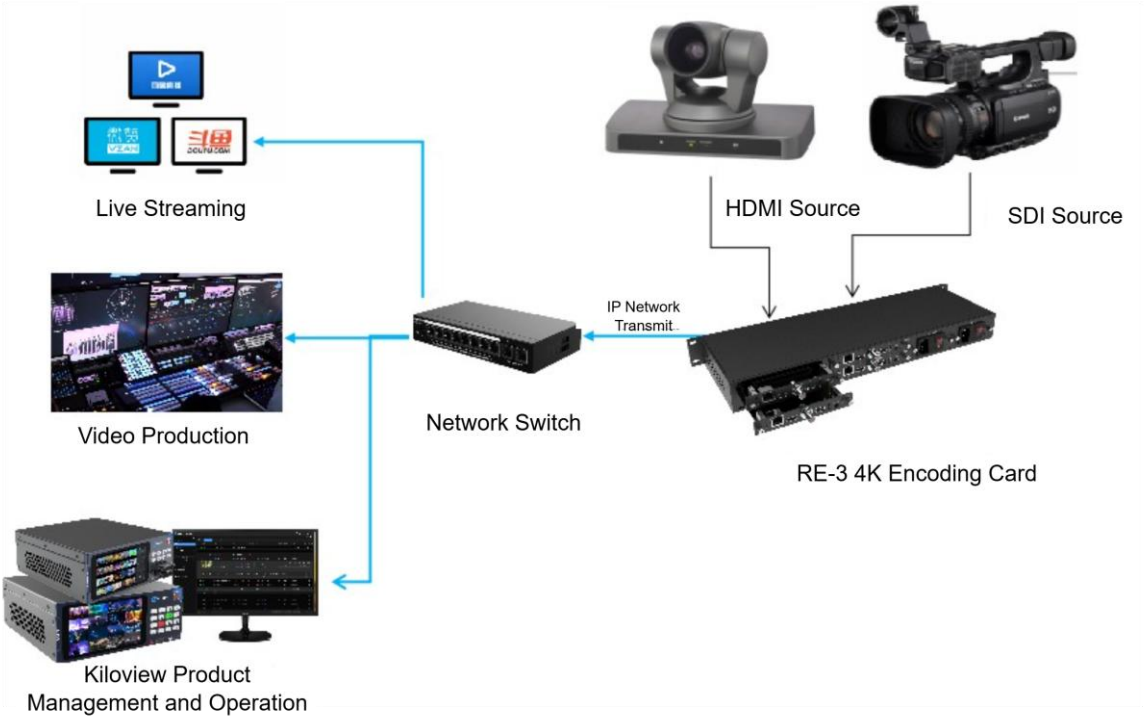
Professional Broadcast & Pro AV Capabilities

12. Superior H.264/H.265 encoding quality and excellent color performance, maintaining smooth, artifact-free video even at low or ultra-low bitrates
13. Supports NTP network time synchronization, achieving millisecond-level accuracy for multi-camera frame synchronization
14. USB-based local recording expansion:
    records input video to USB storage in professional .mov / .mp4 formats with accurate embedded timecode, enabling frame-accurate alignment in post-production
15. Supports NAS recording via NFS / CIFS network storage protocols
16. Seamless integration via NDI® with professional production and monitoring software such as
    TriCaster, vMix, OBS, Kiloview Multiview, NDI Studio Monitor
    Combined with NDI Virtual Input, it can also function as a network-based virtual camera or capture device
17. Supports PTZ camera control (including zoom, focus, iris, and white balance) via USB to RS-232 / RS-485 / RS-422, compatible with NDI / ONVIF and related protocols
18. Supports IP intercom and command communication when used with USB headsets and Kiloview Intercom Server (KIS)

Centralized Management & Easy Deployment

19. Compatible with RU01, RU03, and RU03S rack-mount chassis for easy installation and centralized management
20. A single Ethernet cable can carry video transmission, PTZ control, and Tally signals
21. Ultra-low power consumption (typical ≤ 4W), energy-efficient with minimal heat generation
22. Web-based management interface, accessible via PC, tablet, or smartphone browser, with real-time video preview
23. Supports centralized management via Kiloview KiloLink Server, enabling large-scale remote device management across local or distributed networks
24. Provides HTTP API for system integration and secondary development

3. Product Use Case



4. Product Specifications

Model	RE-3
Video Input[1]	1 × 3G-SDI (SMPTE 424M), backward compatible with HD-SDI (SMPTE 292M) and SD-SDI (SMPTE 259M)
	1x USB-A 1xUSB-C
	1× HDMI
Audio Input	4-channel SDI embedded audio
	4-channel USB embedded audio
	4-channel HDMI embedded audio
	1× 3.5mm LINE IN audio input
Supported Video Resolutions[1]	HDMI Input: 3840×2160p 30fps 1920×1080p 23.98/24/25/29.97/30/50/59.94/60fps 1920×1080i 50/59.94/60fps 1280×720p 29.97/30/50/59.94/60fps 720×576i 50fps (PAL SD) 720×480i 59.94fps (NTSC SD) SDI Input: 1920×1080p 23.98/24/25/29.97/30/50/59.94/60fps 1920×1080i 50/59.94/60fps 1280×720p 25/29.97/30/50/59.94/60fps 720×576i 50fps (PAL SD) 720×480i 59.94fps (NTSC SD) USB Input: 1920×1080p 24/25/30/50/60fps 1280×720p 30/50/60fps

Encode	H.264(AVC): Baseline/Main/High profile, Level 5.1 H.265(HEVC): Main profile, Level 5.0
Streaming Protocols	NDI HX2, NDI HX3(experimental[2]) ,SRT, RTMP/ RTMPS, HLS, TS over UDP, RTP/RTSP, Onvif, SIP/GB-T28181 (custom extension[4])
Intercom	Supported, integrated with Kiloview Intercom Server (KIS)
PTZ	Supported via USB to RS-232 / RS-485 / RS-422 expansion or via IP-based camera control protocols
Network Interface	1 x 10/100/1000BASE - T Ethernet（RJ45）
USB	1×USB 2.0 Type-C
	1×USB 2.0 Type-A
Supported	支持
Chassis Compatibility	RU01, RU03, RU03S
Management	Web UI / KiloLink Server Pro
Power Consumption	5W
Power Supply	Powered via chassis
Temperature	Working: -20℃~45℃ Storage：-40℃~60℃

5. Product Dimensions

148.65x132.00x19.20

6. Product Overview

E3 Interface Overview (Now with USB Camera Input)

Notes:
[1] 4K video encoding is only supported by single HDMI input
[2] RE-3 supports NDI® HX3 encoding as an experimental feature. Whether the product will ultimately participate in or pass official NDI® HX3 certification, or be entitled to use the NDI® HX3 logo, is subject to Kiloview's final determination.
[3] 4K video input is supported exclusively through the HDMI interface. The 3G-SDI interface supports video input up to 1080p only.
[4] Support for SIP / GB-T28181 requires customized development.