AV over IP Trailblazer

Datasheet

CUBE R1 NDI Video Recording and Playback All-in-One unit

CUBE R1-1.01

Product Overview

The **CUBE R1** is engineered for excellence, built on a robust hardware foundation and powered by a tailored, security-optimized Linux operating system. Its 8-core ARM64 processor clocked at 1.8GHz, 12GB DDR4 memory, and high-performance GPU deliver unparalleled efficiency for demanding video workflows. With hardware-accelerated H.264/H.265 codecs, the CUBE R1 sets a new standard for professional video recording.

Key features include simultaneous recording of up to **4 channels of 4K video** or **9 channels of 1080p video**. It supports multiple NDI formats, records in MOV format, and offers NDI SpeedHQ encoding conversion for enhanced storage efficiency and compatibility. Timecode embedding ensures precise multi-channel alignment during post-production.

User-Centric Design
The CUBE R1 features a **5.5-inch built-in touchscreen**, complemented by physical buttons and a control knob for a seamless user experience. Users can enjoy **1/4/9-screen previews**, monitor recording statuses, and leverage its unique ability to record and playback simultaneously. The control knob offers precise **frame-by-frame playback**, with instant NDI output for live content review.

Advanced Storage Solutions
The device supports up to **two hot-swappable Kiloview Storage Sticks**, offering industrial-grade, high-reliability NVMe SSDs with 1TB or 2TB capacities. Storage options include **uninterrupted alternating recording** or **dual-drive backup** for added security. A mechanical locking switch prevents accidental drive removal, while a file unlock mechanism ensures safe rewriting. Audible and visual alerts safeguard against mishandling, ensuring uninterrupted recording under all conditions.

Unmatched Reliability
Designed for continuous operation, the CUBE R1 features **dual-power redundancy** to maintain functionality during power failures. With a power consumption of under 20W at full load, it guarantees 24/7 reliability and optimal performance even in critical environments.

The CUBE R1 is the ultimate solution for professionals seeking top-tier NDI recording with unmatched usability, reliability, and versatility.

Product Features

1.Video Recording Capabilities

-Supports simultaneous recording of up to 9 channels of 1080p60 or 4 channels of 4Kp60 NDI video streams without transcoding;

-Supports simultaneous transcoded recording of up to 3 channels of 1080p60 or 1 channel of 4Kp60 from SpeedHQ to H.264/H.265;

-Compatible with NDI High Bandwidth, NDI|HX2, and NDI|HX3 video formats (not compatible with NDI|HX1 format);

-Recorded videos are in MOV format with embedded timecodes;

2.Interaction Methods

-The front panel includes a 5.5-inch touch LCD screen, physical buttons, and a control knob;

-The touchscreen supports operations such as NDI video source selection, Live/Playback switching, and progress bar dragging;

-Physical buttons and the control knob provide essential functions like recording, stopping, playing, returning, jumping to the first/last frame, pausing/resuming, etc;

-The display screen offers 1/4/9 multi-screen video previews, recording status display, and playback features[1];

-The screen also provides basic parameter settings, such as network address configuration;

-Users can remotely log in to the device’ s Web console via HTTP/HTTPS to access full remote operation and configuration capabilities;

3.Video Playback Function

[1] The web interface can remotely perform the same functions as the main device, supporting quicker recording, window source preview and switching, disk management, video playback, recording and storage settings, time synchronization, language and timezone adjustments, network configuration, firmware upgrades, and manual addition of groups and signal sources.

-Recorded video files can be played back through the front panel display or Web interface[2];

-The device supports playback of files that are currently being recorded (i.e., "simultaneous recording and playback" functionality);

-The front panel touchscreen allows users to adjust the progress bar position, while the physical buttons and control knob enable frame-specific navigation and selection;

4.Storage Devices and Reliability Assurance

-Supports two Kiloview Storage Sticks;

-The Storage Sticks support hot-swappable functionality and feature prominent indicator lights to show operational or error status;

-Supports dual-drive alternating recording;

-Supports dual-drive backup recording;

-Allows for connection to a NAS for recording;

-The Storage Sticks are designed with mechanical locks and photoelectric sensing locking switches for added security;

-The Storage Sticks provide a USB Type-C connection interface for accessing recorded video files;

5.High Performance and High Reliability Design

-8-core high-performance ARM64 processor (1.8GHz clock speed), equipped with 12GB DDR4 memory and a high-performance GPU, supporting hardware-accelerated H.264/H.265 CODEC;

-A Linux operating system that has been tailored and optimized for security;

[2] **Note:** If the recorded video is not transcoded (SpeedHQ to H.264/H.265), the Web browser cannot display videos in the SpeedHQ format. Consequently, files in this format cannot be played back on the Web console.

-Redundant dual-power hot-swappable backup design to ensure power supply safety;

-The system consumes less than 20W of power during full-speed operation, ensuring reliable 24/7 continuous operation;

6.Interfaces and Expansion

-2x 10GbE SFP+ fiber Ethernet interfaces and1x 1GbE RJ-45 Ethernet interface;

-1x HDMI output interface;

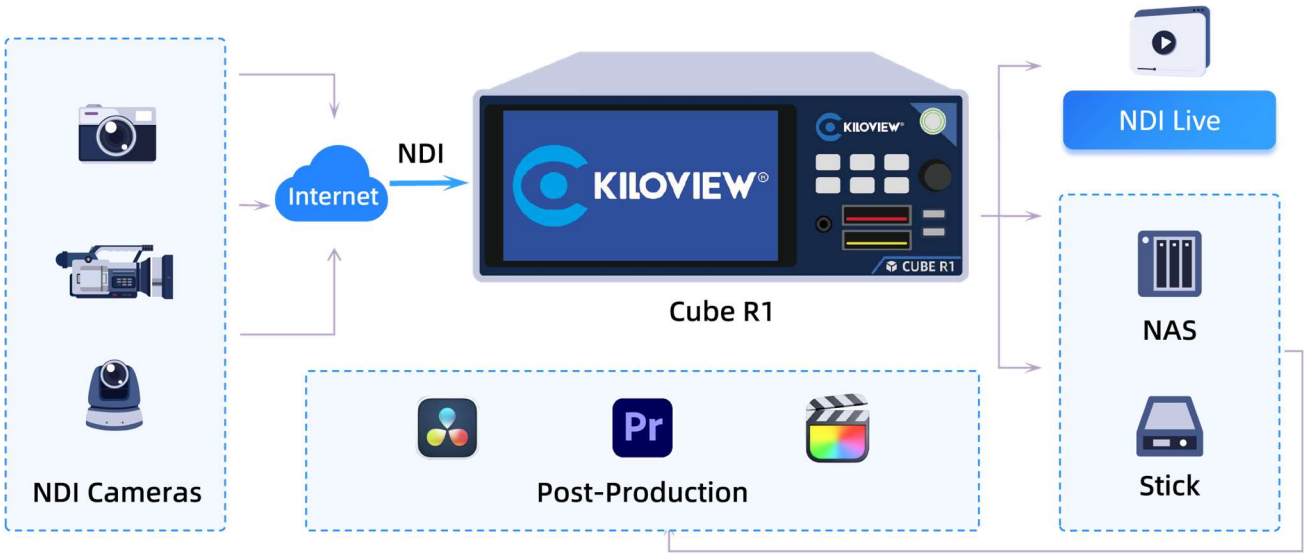
-2x 3.5mm TRS Line Out monitoring interfaces[3];

-1x 3.5mm TRS Line In audio input interface;

-2x USB 2.0 Type-A expansion interfaces (supports external devices like a mouse or keyboard);

Product Application

[3] Currently, Line OUT only supports front panel interface output, and will support dual interface use through software updates in the future.



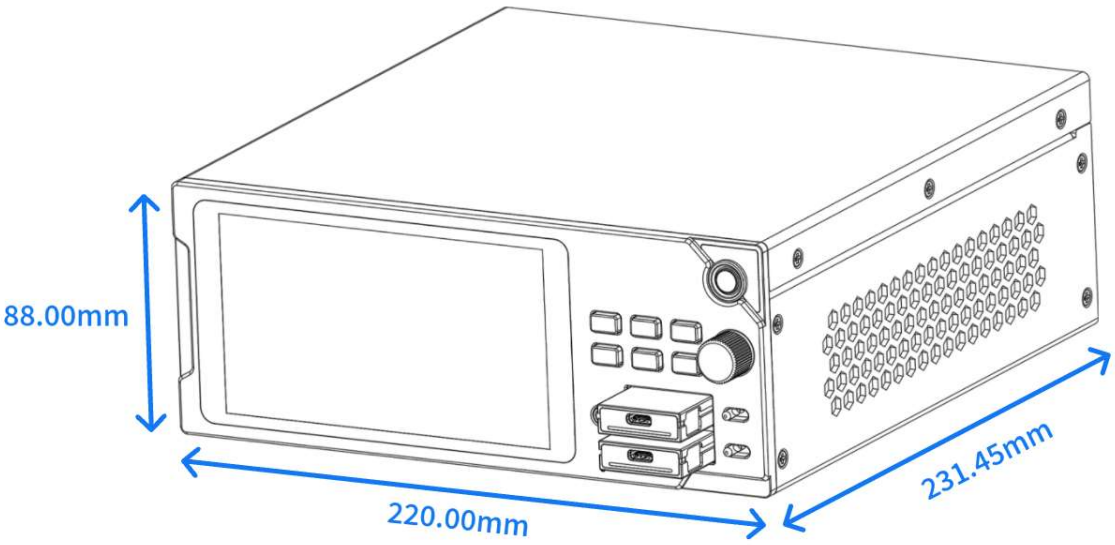
Product application topology diagram

Product Specifications

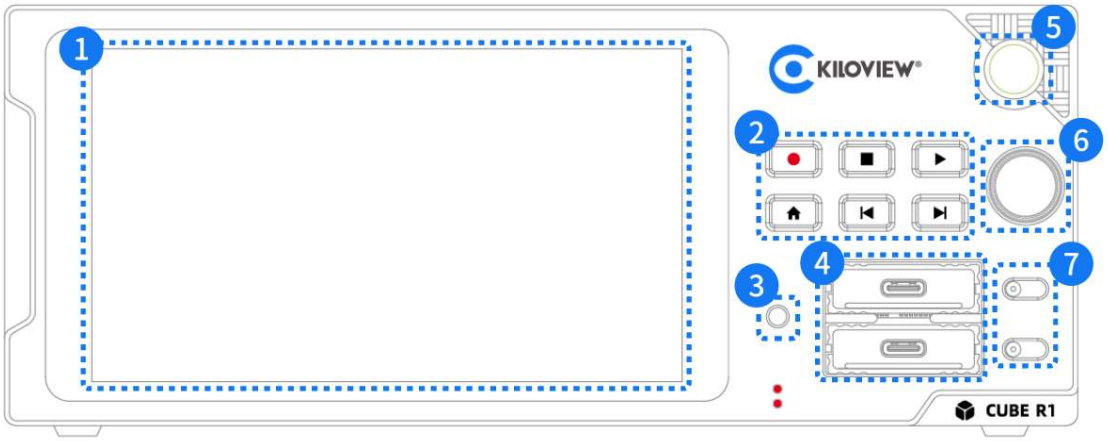
Product Model	CUBE R1
Functionality and Performance	
Recording Capability	Up to 9 channels of 1920x1080p60 video/audio recording
	Up to 4 channels of 3840x2160p60 video/audio recording
NDI Formats	NDI High Bandwidth / NDI|HX2 / NDI|HX3
Recording Format	MOV
File Codec Formats	**Video:** ● SpeedHQ SHQ0/SHQ2/SHQ7 formats; ● H.264/AVC; ● H.265/HEVC; ● SpeedHQ to H.264/H.265 conversion; **Audio:** ● FLT32 (uncompressed) ● AAC (MOV/MP4 compatible)
Storage	2x Kiloview Storage Sticks (optional 1TB/2TB industrial-grade NVMe SSD)
General Parameters	
Display	5.5-inch LCD touch screen
Buttons	6 buttons: support REC, STOP, PLAY, HOME, Backward SKIP, Forward SKIP
Control Knob	1 knob support Backward/Forward and press-to-pause/resume functions
Interfaces	2x 10GbE SFP+ fiber optic interfaces 1x 1GbE RJ-45 Ethernet interface
	1x HDMI 2.0 output interface
	2x USB 2.0 Type-A interfaces
	2x 3.5mm TRS Line Out audio output interfaces
	1x 3.5mm TRS Line In audio input interfac
Cooling Method	Metal heat sink, the entire device relies on active air cooling to dissipate heat
Power Supply	Redundant power, 110~230V AC
Power Consumption	<= 20W
Operating Temperature	-10°C ~ 55°C / 14°F ~ 131°F
Storage Temperature	-20°C ~ 65°C / -4°F ~ 149°F
Management Method	Main unit and HTTP/HTTPS web console
Dimensions	220mm (L) x 231.45mm (W) x 88mm (H)

	(Half 2RU size; two CUBE R1 units can be installed side by side to fit standard 2RU size
Net Weight	1.88kg

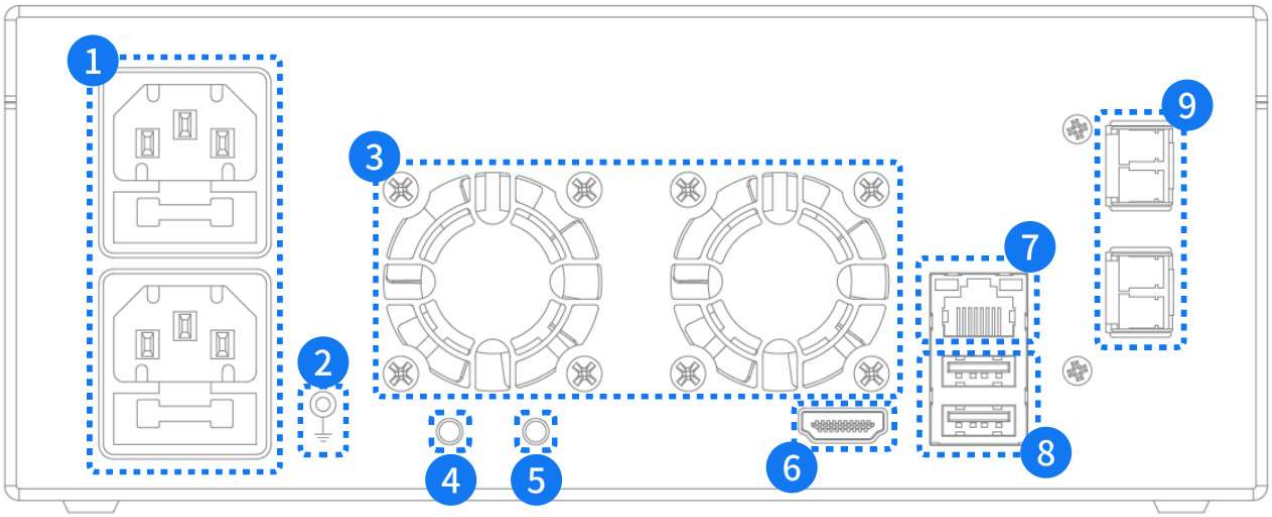
Product Dimensions



Product Structure



1. .LCD Touch Screen (5.5 inches)	2. Control Buttons	3. .Line OUT	4. Hard Drive Slot
5. Power Switch	6. Control Knob	7. Hard Drive Lock	



1.Power Interface	2.Grounding Interface	3.Cooling Fan	4.Line OUT
5.Line IN	6.HDMI Interface	7.1000M Ethernet Port	8.USB Interface
9.10Gbps SFP+ Fiber Optic Interfaces			