AV over IP Trailblazer

Data Sheet

Cradle Series RF02 Media Platform

RF02 -1.01(V1.0.1-2512)

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1. Product Overview

The Kiloview RF02 (Rack Framework) rack-mounted media platform is the flagship product of the Kiloview CRADLE series of card-based rack solutions. The product's core design philosophy is based on a unified platform, modular combination, centralized management, and multi-service integration.

Within a single 2RU chassis, the RF02 supports up to 18 service cards for audio/video processing, including encoding, decoding, media gateway, bonding functionality, and other applications. These cards are interconnect via the RF02's built-in 1G/2.5G *1 network switch module, delivering 3x 10Gbps SFP+ optical Ethernet interfaces and 1x 10Gbps RJ45 Ethernet interface. A high-performance ARM64 central controller runs the dedicated KiloLink Server (RF02 edition), enabling centralized management of all cards while supporting advanced functions of the KiloLink Server, such as bonding services for Kiloview P Series 4G/5G wireless bonding encoders. The dual redundant hot-backup power supplies (2x 500W) can deliver up to 25W+*2 per service card. An optimized thermal design ensures superior cooling performance. It also features a 3.0-inch color LCD panel with control buttons, enabling real-time status monitoring and on-device configuration.

By configuring modular service cards, the RF02 can be flexibly deployed as various high-density systems, including multi-channel encoder, decoder, multi-channel encoding & decoding integrated system, high performance media gateway, or Kiloview P Series bonding server. Its functionality supports free combination and scalable expansion.

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2.Key Features

1. Simple and Efficient Interaction

- **Intuitive front panel control：**
  - 3.0-inch LCD (non-touch): Displays real-time device status and detailed information of each card. Enables instant configuration and monitoring.
  - Physical buttons: Power on/off, menu navigation (previous/next page), and confirm selection.
- **Simplified parameter settings:** Configure network settings and basic RF02 functions directly through the front panel.

2. Highly Flexible Modular Architecture

- **18 hot-swappable card slots (2RU):** Flexibly deploy encoding, decoding, NDI conversion, media gateway, or specialized functional cards.
- **Independent operation:** Single card failures never disrupt system functionality, with hot-swap support for live replacements.

3. Powerful Workflow Compatibility

- **High integration：** Video encoding/decoding, protocol conversion, and media gateway functions unified in a single rack platform, minimizing external hardware dependencies.
- **Seamless collaboration：** Encoding cards, decoding cards, media gateway/bonding cards interoperate within the unified platform, enabling frictionless data flow between functional modules.
- **High-performance processing:**

  Powerful processing capabilities with optimized data routing deliver broadcast-grade quality and low-latency media output.

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4. High Reliability Design

- **Hot-swappable redundant power supply：** Dual 500W redundant power supplies support hot-swapping, ensuring continuous and stable device operation.
- **Adaptive thermal control:** The active cooling system dynamically regulates fan speeds based on internal temperature, maintaining stability under sustained high loads.

5. High-Speed Network Interface

- **3x10Gbps SFP+ ports:** Support fiber transmission, enabling long-distance, anti-interference NDI streaming.
- **1x 10Gbps RJ45 electrical port：** Compatible with standard Ethernet cabling for rapid connection with existing network devices.
- **Multi-interface concurrency：** Simultaneous high-bandwidth media I/O across all interfaces.

6. Built-in Switching Module

- **1G/2.5G adaptive switching：** Flexibly connects mixed-speed devices.
- **Internal data exchange backplane：** Enables real-time data exchange between internal modules.
- **Full-featured integration：** Supports parallel processing of tasks such as encoding, decoding, NDI conversion, media gateway, KIS voice intercom, etc.
- **Dynamic resource allocation：** Automatically allocates bandwidth based on task priority.

7. Fully Integrated Architecture

- **NDI End-to-End Workflow：** Handles high-bitrate NDI® transmission/reception via 10 Gbps interfaces with 4K HDR and embedded multi-channel audio support.

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- **NDI Conversion：** Bidirectional real-time conversion between SDI/HDMI sources and NDI® streams.
- **Media gateway：** Supports cross conversion between NDI and other protocols (RTMP, SRT, HLS).

8.Simplified Deployment and Low-Cost Operation and Maintenance

- **Built-in switching module：** Replaces external network switches, reducing device count and wiring complexity.
- **Plug-and-play operation：** Auto-detects service cards and network devices, enables quick VLAN/port binding via web UI.
- **Cost saving：** Eliminates the need for external switches, additional cables, and accessories, lowering the total cost of ownership.
- **Enhanced data security：** Confines all internal data exchange within the device with port isolation and access control list (ACL) enforcement.

9. Centralized Device Management (KiloLink Server Pro)

- **ARM64 main controller：** Runs customized KiloLink Server Pro for centralized management, control, and firmware upgrades of all service cards.
- **Unified management platform：** Supports unified management of multiple RF02 units, providing flexible signal routing/distribution, ensuring reliable low-latency transmission.
- **Automatic identification and monitoring：** Auto-identifies all service cards with real-time status monitoring and centralized configuration.

10. Diversified Management Methods

- **Local visual management：** LCD touchscreen display real-time device status and card details, enabling quick configuration and monitoring.

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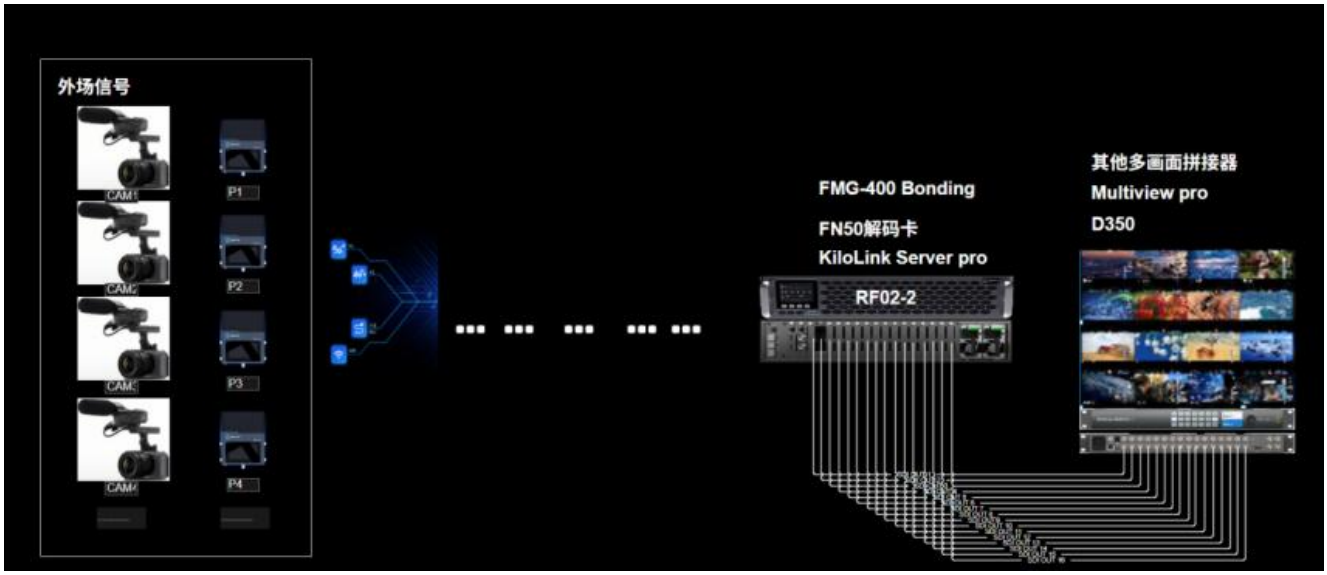
- **Web-based remote management：** Configure devices, monitor status, and upgrade firmware via HTTP/HTTPS protocols.
- **Flexible device grouping and permission management:** Manage multiple devices in groups with granular permission controls for operational security.

3. Product Use Case



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4. Product Specifications

Model	RF02
Functions & Performance	
Service Card Expansion	18x (MAX)/ Rear plug-in card structure (Guide rail, 20 Pin gold finger connector)
	Max power 25W/ slot
Network Connectivity	For Service Cards： 18x 1Gbps/2.5Gbps adaptive Ethernet (Slots 17/18 support up to 10Gbps)
	Switching Capacity：120Gbps
	Supports Third-layer Managed Switches/VLAN
Bonding Performance	Typical P-Series bonding reference: 8 units (field-verified, single stream @ 6 Mbps, 1080p60 or 4Kp30, H.264/H.265).
General Parameters	
Display	3-inch color LCD display (non-touch)
Buttons	4 buttons: Power On/Off, Previous, Next, Confirm
Network Interfaces	3 × 10Gbps SFP+ fiber Ethernet ports
	1 × 10Gbps RJ45 Ethernet port
Cooling	Metal heatsink with active fan cooling for system-wide heat dissipation
Power Supply	2 × hot-swappable redundant power supplies (Single power

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	supply operation supported) Single PSU module: AC 100–240V / 7A (Max), 50/60Hz, 500W Max
Power Consumption	Empty : 30W Full load: 480W (Depending on the actual power consumption of service cards)
Working Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 70°C / -4°F ~ 158°F
Humidity	5% to 90% (non-condensing)
Management	Local device management and HTTP/HTTPS Web UI
Dimensions	483 mm (L) × 487 mm (W) × 88 mm (H) (Standard 2RU)
Weight	Net weight: 8.64 kg Gross weight: 12.48 kg (with dual power supplies, without service cards)
Main Control	
CPU	8-core ARM64 high-performance processor (Cortex-A73 @ 1.8 GHz)
Memory	12GB DDR4
Storage	128GB EMMC

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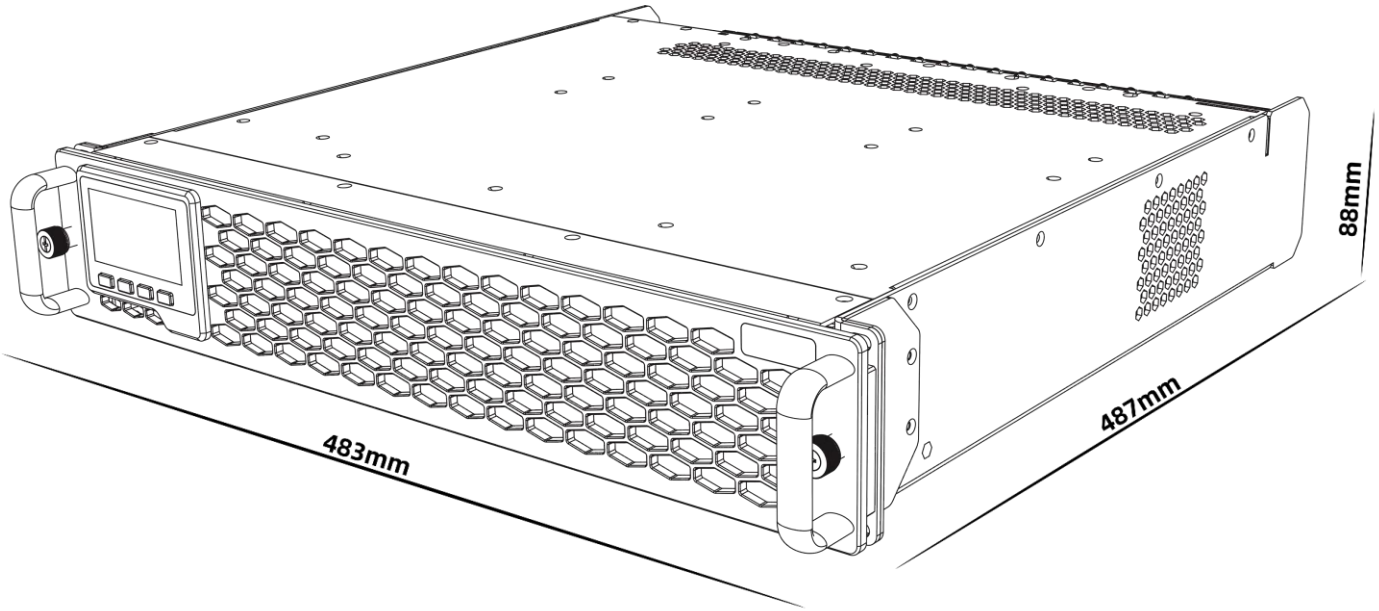
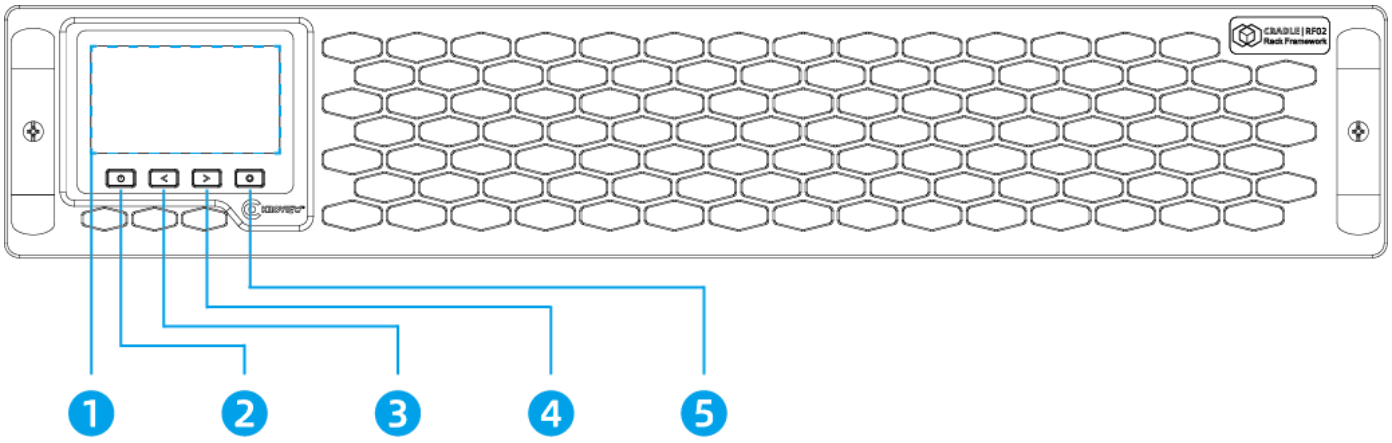
5. Product Overview





1.LCD Screen (3 inches)	2.Power On/Off	3. Previous Page	4.Next Page	5.Confirm

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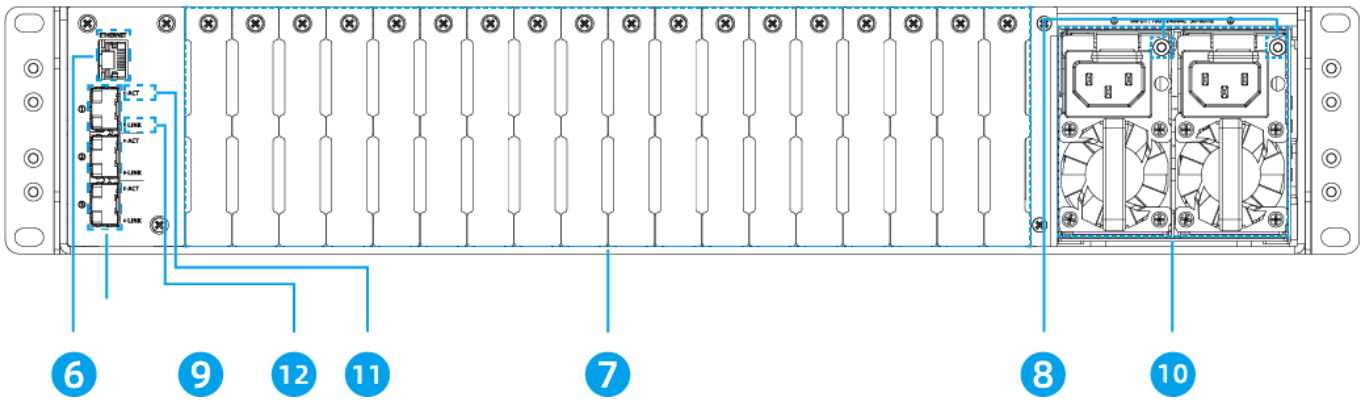

6. RJ45 Ethernet Interface	7.Slot Positions	8.Power Indicator	9. SFP+10Gbps Optical Ethernet Interface
10. Power Supply	11.ACT Indicator	12.LINK Indicator	

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