



RIPA R81 EDU 4K AI TRACKING CAMERA

Version v2.1

Data Sheet

RipaTech Pty Ltd

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PRODUCT SUMMARY

The R81 Series is an intelligent binocular tracking camera designed for professional education, lecture recording, and remote interactive teaching applications. Featuring integrated panoramic and close-up tracking cameras, advanced AI-based human detection, 4K ultra-HD imaging, and comprehensive connectivity options, it delivers seamless, stable, and precise auto-tracking without external positioning systems.

















Figure 1: R81 Edu 4K AI Tracking Camera

FEATURE HIGHLIGHTS

🌟 Key Features

Feature Category	Description
Integrated Design	Built-in panoramic + tracking camera in a single unit for seamless wide-angle coverage and close-up detail
Intelligent Teaching Tracking	Advanced image recognition algorithms enable fast, stable, accurate target tracking—no external positioning cameras or tracking hosts required
Full-Frame Image Recognition	Per-frame detection with high sensitivity; accurately distinguishes people from backgrounds even in complex, multi-target environments
High Interference Immunity	Flexible recognition shield settings prevent false tracking from moving objects or projector light interference
Stable & Adjustable Tracking	Adjustable movement sensitivity prevents false triggers from minor gestures; adaptive zoom maintains consistent subject framing
Environmental Adaptability	Tracking performance unaffected by classroom size, shape, or seating arrangements
Super Wide Dynamic Exposure	Maintains subject visibility under strong backlight or projector illumination
Multiple Tracking Modes	Supports real-time tracking, area tracking, and mode switching for flexible deployment

Feature Category	Description
 4K Ultra HD Imaging	8.42MP Sony® CMOS sensor; max resolution 3840×2160 @ 30fps; delivers crisp, lifelike video with exceptional facial detail
 Optical Zoom Lens	12× optical zoom; horizontal FOV 8° (tele) ~ 80° (wide)
 Leading Autofocus	Advanced AF algorithms ensure fast, accurate, stable focusing in dynamic scenes
 Low Noise, High SNR	Low-noise CMOS sensor + 2D/3D noise reduction delivers >50dB SNR with clean, clear video
 Multiple Compression Standards	Video: H.264 / H.265; Audio: AAC
 Versatile I/O Interfaces	HDMI, SDI, USB 3.0 (dual-stream), LAN (PoE+), LINE-IN, RS232/RS485
 Comprehensive Network Protocols	ONVIF, GB/T28181, RTSP, RTMP/RTMPS, SRT, VISCA OVER IP, IP VISCA; supports RTP multicast & RTMP push to Wowza/FMS
 Multiple Control Protocols	VISCA, Pelco-D, Pelco-P; auto-protocol detection; baud rates: 2400~115200
 PoE+ Support	Single Ethernet cable delivers power, control, and AV signals—simplifies installation
 255 Preset Positions	Store up to 255 presets; 10 accessible via remote control
 Built-in Microphone Array	Omnidirectional pickup, effective range: 6–7 meters
 Quiet PTZ Movement	High-precision stepper motors enable smooth, near-silent pan/tilt operation
 Flexible Installation	Teacher camera: wall or ceiling mount; Student camera: wall mount only
 Wide Application Scope	Ideal for lecture capture, hybrid learning, remote instruction, and video conferencing

TECHNICAL SPECIFICATIONS

Technical Specifications

Table 1: Camera Lens Parameters

Parameter	Tracking Camera (Close-up)	Panoramic Camera (Teacher)	Panoramic Camera (Student)
Image Sensor	1/2.8" HD CMOS	1/2.8" HD CMOS	1/2.8" HD CMOS
Effective Pixels	8.42 MP, 16:9	8.42 MP, 16:9	8.42 MP, 16:9
Lens Type	12× Optical Zoom	Fixed Focal Length	Fixed Focal Length
Horizontal FOV	8° (N) ~ 80° (W)	45.5°	110°
Aperture	F1.8 ~ F2.68	F2.5	F2.2
Focal Length	Variable	f = 6.8 mm	f = 2.03 mm
Lens Angle Adjustment	—	±10°	±20°
Minimum Illumination	0.5 Lux (F1.8, AGC ON)	—	—
Digital Zoom	10×	—	—
White Balance	Manual / Auto / One-touch / Custom	—	—
Focus	Auto / Manual / One-push	—	—
Exposure Control	Auto / Manual / Shutter / Aperture / Brightness Priority	—	—
Shutter Speed	1/25 ~ 1/10,000 s	—	—
BLC / WDR	On/Off; Dynamic Range 1~8	—	—
Noise Reduction	2D & 3D DNR	—	—
SNR	>50 dB	—	—

Video Output Formats by Interface

Interface	Supported Resolutions & Frame Rates
HDMI	4K@30/25fps, 1080P@30/25fps, 720P@30/25fps
SDI	1080P@30/25fps, 720P@30/25fps
USB 3.0	YUY2/NV12: 1920×1080 / 1280×720 / 640×360 @30fps
LAN (IP Stream)	<ul style="list-style-type: none"> • Panoramic: 3840×2160 / 2592×1944 / 2304×1296 / 1920×1080 / 1280×720 @30/25fps • Close-up: 3840×2160 / 1920×1080 / 1280×720 / 640×480 @30/25fps

Table 2: Interface & Connectivity

Category	Specification
Video Outputs	HDMI, SDI, LAN (IP), USB 3.0
Audio Input	Stereo 3.5mm LINE-IN



Ripa R81 Edu 4K AI Tracking Camera

Category	Specification
Audio Output	HDMI, SDI, LAN, USB 3.0
Audio Compression	AAC
Video Compression	LAN: H.264 / H.265; USB 3.0: MJPG / H.264 / YUY2 / NV12
Network	10/100/1000M Ethernet; PoE+ (IEEE 802.3at)
Network Protocols	RTSP, RTMP, RTMPS, SRT, ONVIF, GB/T28181, VISCA OVER IP, IP VISCA; RTP multicast; Remote upgrade/reboot/reset
Control Interfaces	RS232, RS485, LAN
Control Protocols	VISCA, Pelco-D, Pelco-P; Auto-detect; Baud: 2400/4800/9600/38400/115200
USB Protocols	UVC (Video), UAC (Audio)
Power Input	DC 12V \pm 10% via HEC3800 socket or PoE+
Power Adapter (Optional)	Input: AC 110–220V; Output: DC 12V/2.5A
Max Power Consumption	24W
Dimensions (W×H×D)	219 × 136.6 × 155.4 mm
Weight	1.58 kg

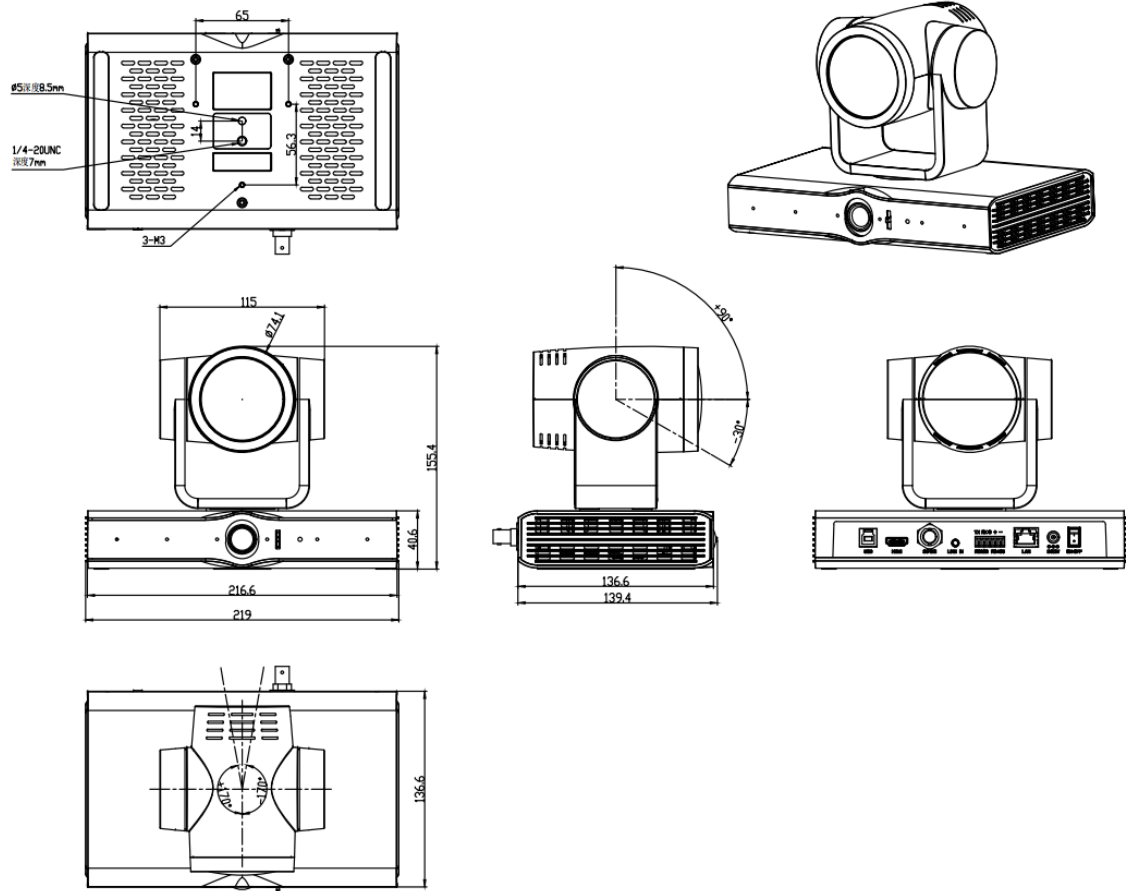
Table 3: PTZ Performance

Parameter	Value
Pan Range	-170° ~ +170°
Tilt Range	-30° ~ +90°
Pan Speed	0.1 ~ 60°/s (adjustable)
Tilt Speed	0.1 ~ 45°/s (adjustable)
Preset Movement Speed	Pan: 60°/s; Tilt: 45°/s
Preset Positions	Up to 255 (10 accessible via remote)

Table 4: Environmental & Operational

Parameter	Specification
Operating Temperature	-10°C ~ +50°C
Operating Humidity	20% ~ 80% RH (non-condensing)
Storage Temperature	-10°C ~ +70°C
Storage Humidity	20% ~ 95% RH (non-condensing)
Installation Environment	Indoor use only
Mounting Options	Wall mount (standard); Ceiling mount (teacher camera only)

PRODUCT DEMENSION



PRODUCT IMAGE LIBRARY



Figure 4: Camera

ORDERING GUIDE



Ripa R81 Edu 4K AI Tracking Camera

RipaTech product code: RP-R81-T-00680, RP-R81-S-00680