

A&E Specifications for Video Analytics System

PART 1 – GENERAL

1.1 SUMMARY

A. This section outlines the requirements for a Video Analytics System that leverages AI-powered video content analysis to enhance situational awareness, automate surveillance tasks, and generate actionable metadata.

B. The Video Analytics System shall perform real-time and post-event analysis using embedded AI algorithms, supporting edge processing devices and centralized management, while maintaining compatibility with all major IP camera brands.

C. Video Analytics Licenses are Perpetual — No Subscriptions, Maintenance, or Annual Fees

1.2 SYSTEM DESCRIPTION

A. The system shall use embedded AI video analytics software deployed on edge devices powered by high-performance chipsets (e.g., TI AI Chipset or equivalent), ensuring low latency and bandwidth efficiency.

B. Embedded 4CH or 8CH Video Analytics Gateway shall include 19+ built-in standard analytics features at no cost and support additional over 53 advanced analytics modules via license activation.

C. The system shall not rely on traditional server-based or camera-embedded analytics only but provide flexible hybrid gateway architecture.

D. This section covers the provision of an Embedded AI Video Analytic Device designed to analyze live video feeds in real time using onboard AI processing, minimizing server and network load.

E. The system shall support integration with IP cameras and Video Management Systems (VMS), delivering metadata, events, and alarms via standard protocols.

1.3 SUBMITTALS

- Manufacturer's Data Sheet and Certifications
- Installation Guide and Software Manual

- Compliance Documents (NDAA, GDPR, etc.)
- Integration Documentation and SDK/API references

1.4 REFERENCES

- NDAA Compliance
- ONVIF Profiles S, T, and M
- ISO/IEC 27001 (Information Security)
- GDPR Compliant (for systems used in the EU)
- IEEE 802.3 (Ethernet standard)

PART 2 – PRODUCTS

2.1 MANUFACTURER

Approved Manufacturer: EDGEDX Co., Ltd in Korea

Model: (Insert Model Number)

Alternative manufacturers must meet or exceed the listed specifications.

Or Substitutions: No substitutions allowed.

2.2 EDGE VIDEO ANALYTICS DEVICE

- A. Processor: TI AI Chipset or equivalent
- B. OS: Embedded Linux or Android
- C. Input: Minimum 4 x RTSP camera streams @ 1080p
- D. Output: Metadata, event triggers, and HTTP/ONVIF notifications
- E. Network: Dual Gigabit Ethernet Ports
- F. Storage: Optional local SD/NVMe for video snippets and metadata
- G. The Video Analytic Device shall be an Embedded AI gateway type, compact edge device equipped with a dedicated AI accelerator chipset.
- H. It shall analyze multiple RTSP camera streams simultaneously, applying advanced video analytics for object detection, tracking, classification, and behavioral analysis.
- I. The device shall be operable in on-premises, hybrid, or cloud-connected environments.
- J. System shall support license-based modular analytics expansion.
- K. Outdoor-Optimized rugged fanless design ensuring reliable operation in harsh temperatures ranging from -30°C (-22°F) and 70°C (158°F).

2.3 VIDEO ANALYTICS FEATURES

Built-in (Basic): 19 packages

- Dynamic Privacy Masking
- Dynamic Face Masking
- LP Masking
- Basic Attribute
- Queue Management
- Heatmap
- Intrusion Detection
- Loitering Detection
- People Counting
- Vehicle Counting
- Zone Counting
- Multi Zone Counting
- Virtual Fence
- Stopping Detection
- Stay & Go
- Enter/Exit Detection
- Speed Anomaly Detection
- Occupancy Car Counting
- Occupancy Counting

Advanced Video Analysis (12 units, License Activated)

- Crowd Detection
- Advanced Visitor Analysis
- Hand & Foot Intrusion
- Intentional Body Gaze Detector
- Imminent Threat
- Fallen Person Detection
- Animal Detection
- Fire & Smoke Detection
- Vehicle Type Counting
- Vehicle Type Detection
- Thermal Intrusion Detection
- Advanced Attribute

Extra Licenses (20 units, License Activated)

- License Plate Recognition (USA, Europe, Japan, Korea, others as requested)
- Advanced Heatmap
- Vehicle Queue Management

- No PPE (Personal protective equipment) Detection
- Illegal Dumping
- Aggressive Detection
- PTZ Tracking
- Human Prolonged Stay
- Bullying Detection
- Forklift No Helmet
- Forklift Detection
- Forklift Non-Driver Detection
- Staff Exclusion People Counting
- Covered Face Detection
- No Mask
- Reverse Movement Detection

Extra Licenses (11 units, Enabling Hybrid AI Boost)

- Under-Age Detection
- Phone-Walking Detection
- Unsafe Lifting
- Fire & Smoke Detection+
- Fallen Person Detection+
- Aggressive Detection+
- Animal Detection+
- Spill Detection
- Imminent Threat+
- Out of Uniform
- Close Camera Covered Face

2.4 SYSTEM INTEGRATION

- Must support open APIs (RESTful, WebSocket, MQTT)
- ONVIF Profile S, T & M compliant
- Compatible with major VMS platforms (Milestone, Genetec, Nx Witness, etc.)
- Web-based or mobile dashboard for event review and configuration
- Edge device must be manageable via centralized AI management server

2.5 HARDWARE SPECIFICATIONS

- **Embedded Processor:** TI AI DSP or equivalent
- Easy AI system construction with existing CCTV cameras
- Easy to configure and intuitive AI video analytics applications
- **Web based configuration**
- **LTE support**
- **NDAA Compliant**
- **System Events:** Tamper Detection, Alarm In, Virtual Alarm In, Video Loss / Recovery, Disarm, Recurrence, Login, System Start
- **Action Handlers:** HTTP, TCP, FTP, E-mail, S3, VMS, Onvif, Audio Back Channel (Camera speaker)
- **Combining Rules with Other Events:** YES
- **Pre/Post snapshot:** YES
- **Annotated Video Stream:** YES
- **Max. Video Input resolution:** 4K@ 60 fps (2M@ 240 fps) 2M@ 240 fps
- **Video Input Method:** RTSP, RTSP over HTTP/S, Onvif
- **Supported Input Video Format:** H.265 / H.264
- **Video Output Stream Method:** RTSP over TCP/UDP, RTSP over WebSocket, RTSP over HTTP/S
- **Audio Input:** 1 EA, **Audio Output:** 1 EA
- **Interface:** 1 x USB3.0, 2 x 10/100/1000 BASE-T Ethernet (ETH1/ETH2), 1 x RS-485 (Full-duplex 4line T/B), 1x Mini-PCle & LTE Module, 1 x RS-232 (D-SUB9), 1x micro-SIM Slot, 1ch input / 1ch output, 2x 50Ω SMA Female for Main Antennas, 1x 50Ω SMA Female for GPS(GNSS) Antenna
- **Alarm Input:** 4CH DI (0-30V Input),
- **Relay Output:** 4CH Relay (Up to 3A and 30VDC/250VAC output) NO/COM/NC (Terminal Block)
- **Storage:** 1 x Internal SD Card Slot. Optional 1 x M.2 M-Key Slot (for M.2 2280 NVMe SSD). Recording license 8-ch
- **Watchdog, RTC, Factory Reset Button, LED Indicators** of 1 x **PWR LED** (3 Color), 1 x **Status LED** (3 Color), 1 x **ALARM IN LED** (3 Color), 1 x **ALARM OUT** (3 Color).
- **Power Supply:** 12V/3.3A adaptor DC +9V ~ +36V (DC Input Voltage) .
- **Power Consumption:** 16 Watts (Without NVMe SSD)
- **Temperature/Humidity:** Fanless Weatherized Indoor / Outdoor Use of -30°C ~ 70°C. (-22°F~158°F) / 10 ~ 90% NC (Without NVMe SSD)
- **Dimension:** (WxDxH) (8.40 x 6.92 x 2.36 Inch). 213.6 x 175.8 x 60 mm,
- **Weight (Net/Gross):** 3.3 / 4.85 Lbs. 1.5 / 2.2 Kg
- **Mounting Type:** Desk, Wall

2.6 ENVIRONMENTAL

- Operating Temperature: : Fanless Weatherized Indoor / Outdoor Use, ranging from -30°C (-22°F) and 70°C (158°F) (Without NVMe SSD)
- Humidity: 10% to 90% RH, Non-Condensing
- Certification: CE, FCC, KC, UKCA..

2.7 SOFTWARE FEATURES

- Web-based UI with role-based Video Analytics.
- Multiple AI based Video Analytics Applications run on a single channel.
- Transform any IP CCTV based vision into a variety of AI applications.
- Broaden into diverse IT services by combining video analysis data with the cloud interface.
- Provides various API integration Methods for partners and projects.
- Customizable Event Transmission via Network & Serial Interfaces will allow Users to customize event messages without coding through an editing UI and supports HTTP, TCP, MQTT, SMTP, FTP, RS232/485 communications.
- Supports REST API for Various Web, any legacy system platform and devices.
- ONVIF friendly for Annotated video streaming, Event metadata, Interoperability with any 3rd party VMS.
- Integrated with Major VMS Partners of Milestone, Genetec, ExacqVision, Luxriot, Digiever, Eagle Eye, NetworkOptix, TUTK and Alarm Partners of Immix, Sureview, Monitor Computer Systems, Satel, Securithor, and others more.
- Bespoke Events Transmission via Network
- Support a wide range of protocols—including HTTP, TCP, SMTP, FTP, and MQTT—enabling seamless integration with existing systems without the need for custom development.
- With AI Bridge templates and token-based configuration, users can effortlessly transmit metadata, snapshots, and video streams to designated receiving servers.
- Provides Mobile Viewer
- Seamlessly manage user accounts and events, with live and recorded video footage and snapshots instantly accessible on the mobile app through P2P transmission.
- High-speed recording to M.2 NVMe SSD with intuitive built-in GUI for easy operation.
- Integrated Rule setup
- Application-based rule setup

- Rule-triggered events as configured in the application
- Alarm I/O interfaces (physical and virtual)
- Modbus Protocol Supported for Smart Building integration via External Alarm Box Integration
- External alarm box configuration via relay expansion, utilizing the Modbus protocol for efficient communication and control.
- Cloud-Enabled Service Platform of Dashboard, Alarm Console, Data Visualization, Device management & Health Check, SNS Messenger Service.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Devices shall be installed as per the manufacturer's guidelines.
- B. Configuration must include proper calibration for detection zones, height estimation, and camera angle.
- C. Ensure edge devices have continuous power and network connectivity.
- D. Devices shall be securely mounted near network switches or cameras.
- E. Power and network cabling must comply with manufacturer recommendations.
- G. Ensure correct camera stream routing and device pairing.

3.2 TESTING & COMMISSIONING

- A. All analytics functions must be verified in real-time.
- B. Metadata and events must be checked for accurate and false positives.
- C. Reports shall be generated to validate system performance.
- D. Calibrate each analytic function per camera angle and use-case.
- E. Validate detection accuracy under varying light and movement conditions.
- F, Log at least 48 hours of operational test data before final acceptance.

3.3 TRAINING & DOCUMENTATION

- A. Vendor shall provide training to system integrators and end-users.
- B. Include quick-start guide, full technical manual, and system diagram.
- C. Licenses and software configurations must be handed over at project close.

3.4 TRAINING & HANDOVER

- A. Provide operational training for system integrators and end users.
- B. Provide manuals, licenses, and configuration files during handover.
- C. Vendor shall provide training to system integrators and end-users.
- D. Include quick-start guide, full technical manual, and system diagram.
- F, Licenses and software configurations must be handed over at project close.

-----THE END -----