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Document No.	**TM-DS-EYS-001**
Revision	**2.0**
Issue date	**26 October 2026**
Manufacturer	**The Mather Co., Ltd. (Thailand)**

EyeSight

AI Video Analytics Platform — Product Datasheet

1 Product Overview

EyeSight is an on-premise AI video analytics platform that turns standard IP cameras into real-time sensors for people counting, occupancy, crowd density, queue management, flow tracking, event detection and audience insights. By default EyeSight runs in **Privacy Mode**, which works without identifying individuals.

EyeSight ingests video from ONVIF / RTSP cameras or a Video Management System (VMS), processes it on GPU servers using deep-learning detection and tracking models, and delivers live dashboards, alerts, public information displays, reports and open APIs.

EyeSight is developed in Thailand by The Mather Co., Ltd., a Thai data science and AI company. Its analytics engine has been deployed with Avigilon, Hikvision, Bosch and Pelco cameras in Thai visitor-management and exhibition projects (see Section 14). The product is built on a modular architecture: a common **Core Platform** plus licensable **Analytics Modules**.

Sector	Typical applications
Airports & transport hubs	Passenger counting, check-in / security / immigration queue wait time, terminal occupancy, passenger flow
Exhibitions & showrooms	Booth / zone traffic, heat maps, dwell time, audience demographics
Visitor centres & facilities	Visitor statistics, heat maps, behaviour alerts (fall, fight, weapon), visitor check-in
Retail & F&B	Footfall, conversion with POS data, peak-hour staffing
Public venues & events	Crowd density monitoring, abnormal event alerts, visitor management

2 Key Features

Feature	Description
Vendor-agnostic	Field-proven with Avigilon, Hikvision, Bosch and Pelco cameras (dome, bullet, fisheye) and VMS integration
People counting & occupancy	Line counting, live zone occupancy, crowd density levels
Queue analytics	Queue length, real-time wait-time estimation, throughput per lane
Flow & tracking	Direction, zone-to-zone flow, dwell time, heat maps and flow maps
Notification centre	Real-time alerts with severity levels and audible alarm
Historical analytics	≥ 5 years of statistics, trends, reports and export

Feature	Description
Dashboards & public displays	Web dashboards and multi-language signage screens
Open integration	REST, WebSocket, MQTT, SFTP and database interfaces
Privacy Mode (default)	No facial recognition, no biometric data and no personal data; identity-related modules remain locked
On-premise	All processing and data remain within the customer's infrastructure
Optional modules	Event detection, audience insights, visitor recognition and business data, licensed separately

3 Platform Architecture

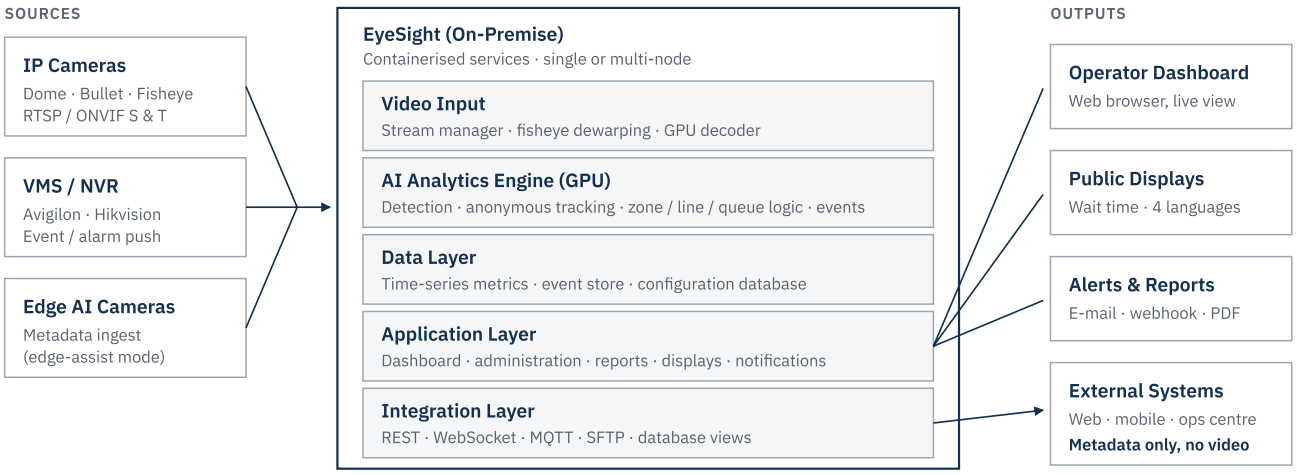


Figure 1. EyeSight system architecture.

Layer	Components
Video Input	Camera / VMS connector, stream manager, fisheye dewarping, GPU-accelerated decoder
AI Analytics Engine	Person detection, anonymous multi-object tracking, zone / line / queue logic, event models, optional attribute models
Data Layer	Time-series metrics store, event store (with snapshot evidence), configuration database
Application Layer	Operator dashboard, administration console, report engine, public display module, notification centre
Integration Layer	REST API, WebSocket, MQTT, SFTP export, database views

Deployment: containerised micro-services (Docker), on-premise, single-node or multi-node; air-gapped installation supported.

4 Analytics Modules

4.1 Core Platform (included)

- Camera connection via RTSP / ONVIF Profile S & T
- VMS / NVR connectors: Avigilon (alarm and webhook events), Hikvision DeepinView cameras and DeepinMind NVR (alarm-server event push); other VMS via RTSP / ONVIF
- Video codecs: H.264, H.265 (HEVC), MJPEG
- Lens support: standard, varifocal and fisheye (180°–360°) with dewarping and overhead (top-down) detection models
- Graphical configuration of analysis areas on live view: ROI, Zone, Line, Queue Lane, Service Point
- Area hierarchy: Site › Building › Floor › Area › Zone; floor-plan editor with camera and zone placement
- Edge-assist mode: ingests metadata from cameras with built-in AI analytics (e.g. Hikvision DeepinView)
- Operator dashboard, administration console, user / role management, system health monitoring

4.2 Counting & Occupancy Module

- Bi-directional (in / out) people counting across user-defined lines, in real time
- Live occupancy per zone and per aggregated area
- Crowd density estimation (persons/m²) with levels Low / Medium / High / Critical
- Multi-camera de-duplication for overlapping fields of view

4.3 Queue Analytics Module

- Queue count and queue length per lane, counter or service point
- Real-time queue wait-time estimation (tracking-based and throughput-based methods)
- Throughput: persons served per configurable interval (1 / 5 / 15 / 60 min)
- Service-level thresholds and alerts on queue length, density and wait time
- Preset templates: Check-in, Security Screening, Passport Control (Departure / Arrival), ticketing

4.4 Flow & Heat Map Module

- Anonymous multi-object tracking using temporary, non-identifying track IDs
- Direction analysis and zone-to-zone flow (origin–destination matrix)
- Dwell time per zone
- Visualisation: heat map (zone × time), flow map, density map on floor plan

4.5 Event Detection Module (optional)

- AI behaviour events: fall, fight / violence, weapon
- Rule-based zone events: over-capacity, line crossing, restricted-zone intrusion, loitering
- Snapshot evidence and event playback (from 3 seconds before the event), stored on-premise
- Event timeline, review and acknowledgement workflow

> **Note:** Detection accuracy for fall, fight / violence and weapon depends on distance to camera, camera resolution, object size in the image, lighting and occlusion. Weapon detection in particular requires the object to be clearly visible at sufficient pixel size; camera placement is validated per site.

4.6 Audience Insights Module (optional; locked while Privacy Mode is on)

- Demographic estimation per zone: age range, gender; emotion estimation
- Staff / visitor separation
- Aggregated statistics only

4.7 Visitor Recognition Module (optional; locked while Privacy Mode is on)

- Face matching at entry / exit points against an opt-in registered visitor list, with QR-code fallback
- Visitor check-in / check-out log
- Requires an explicit PDPA consent workflow

4.8 Business Data Module (optional)

- Integration with POS / sales / booking data
- Conversion rate (traffic vs. transactions), sales per visitor, customer and sales reports

5 Alerts & Notification Centre

- Threshold rules on count, occupancy, density, queue length, wait time and events
- Severity levels: Critical / Warning / Info, with escalation and audible alarm
- Delivery: dashboard notification centre (real-time via WebSocket), e-mail, webhook, MQTT
- Alert history, acknowledgement and audit trail

6 Historical Analytics & Reporting

- Time-series storage of all metrics, from 1-minute granularity
- Data retention: ≥ 5 years of statistical data (sized by storage)
- Trend analysis: hourly / daily / weekly / monthly / year-on-year, peak hours and comparison by area
- Dashboards, graphs and charts; scheduled and on-demand reports
- Export: PDF, XLSX, CSV

7 User Interfaces

7.1 Operator Dashboard

- Web application on Google Chrome, Microsoft Edge and Mozilla Firefox (latest two versions); no client installation
- Real-time widgets: count, occupancy, density, queue status, wait time, alerts, heat map
- Drill-down by site, building, floor, area, zone and service point
- Live CCTV view alongside analytics (1×1 to 16-camera layouts, via camera or VMS stream)
- User interface languages: Thai, English

7.2 Public Display Module

- Full-screen signage pages (landscape / portrait) for any display player with a web browser
- Content: wait time per lane, occupancy level, directional guidance, custom messages
- Multi-language rotation: Thai, English, Chinese (Simplified), Japanese; further languages configurable
- Layout, font, logo and colour theme editor
- Users select which lanes / metrics appear on each screen and may change them at any time through a configuration page, without programming

7.3 Administration Console

- Camera, zone, rule and display management
- Users, roles and permissions
- System health: camera stream status, GPU / CPU / storage utilisation, service status

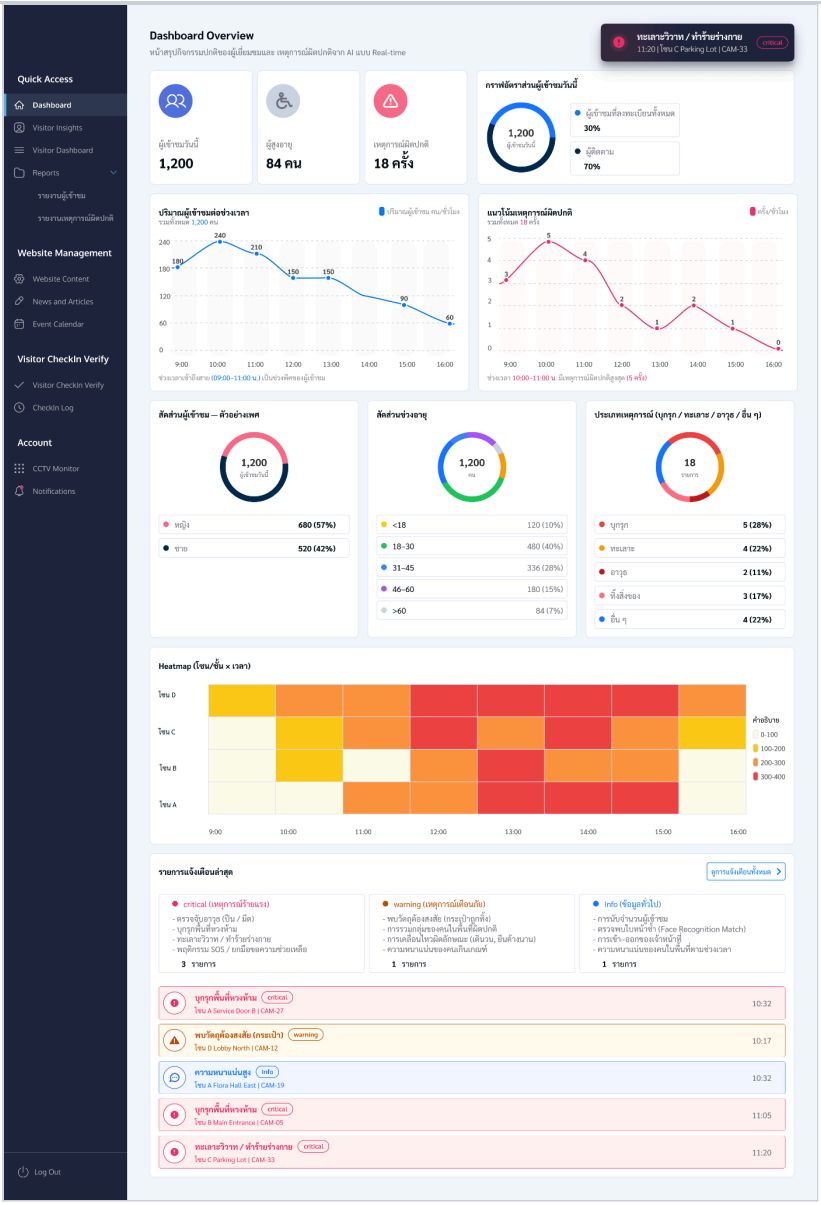


Figure 2. Operator dashboard: visitor KPIs, hourly visitor and event trends, demographics, zone × time heat map and live alert panel.

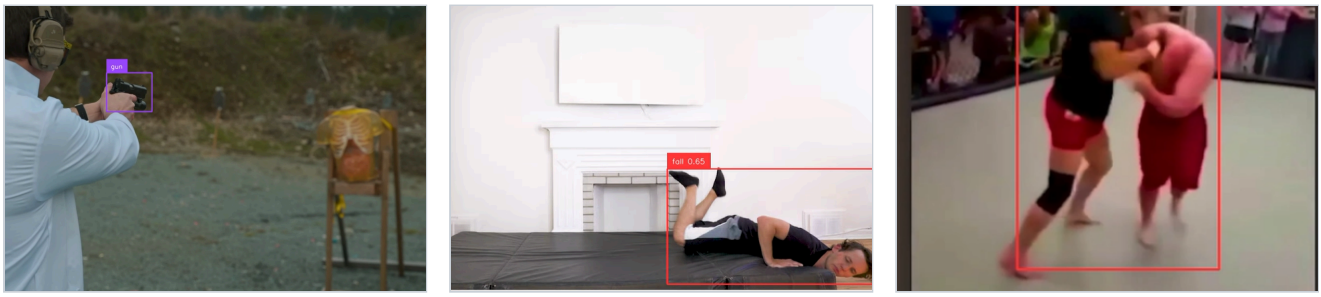


Figure 3. Event Detection Module (optional): weapon, fall and fight / violence detection. Each event is pushed to the notification centre with severity, camera, zone, snapshot evidence and playback.

> Figures 2 and 3 are taken from a reference deployment and show demonstration data and test footage. Customer branding has been removed; dashboard layout and theme are configurable per site.

8 Integration

Item	Specification
APIs	RESTful API (OpenAPI 3.0), WebSocket (real-time push), MQTT publisher
File / database exchange	SFTP scheduled export; read-only database views
Data formats	JSON, XML, CSV
Outbound data	Analytics results and metadata only. Video streams are never sent to external systems.
Authentication	API key / OAuth 2.0 bearer token; IP allow-list
Typical targets	Websites, mobile applications, operation centres, BI tools, digital signage, third-party visitor systems
Time synchronisation	NTP

9 Privacy & Security

- **Privacy Mode (default):** anonymous tracking with temporary, non-identifying track IDs only; no facial recognition, no biometric templates and no personally identifiable information stored; identity-related modules are locked
- Identity-related modules can be unlocked only by an Administrator, with a consent workflow and audit log
- All video processing and data storage on-premise
- Role-based access control (RBAC) with configurable permission levels (e.g. Administrator, Supervisor, Operator, Viewer) and per-area data scope
- Optional LDAP / Active Directory integration
- HTTPS / TLS 1.2 or later for all web and API traffic
- User activity and configuration audit log
- Designed to support PDPA (Thailand) compliance

10 Performance

Item	Value
Video channels per AI server	Depends on the number of cameras, resolution and enabled analytics modules; server and GPU sizing is provided per project
Analytics frame rate	5–15 fps per channel, configurable
Data latency (event → dashboard)	≤ 5 seconds
Line counting accuracy	≥ 90 %
Zone occupancy accuracy	≥ 85 %
Queue wait-time estimation	Within ± 20 % of measured wait time
Scalability	Horizontal scaling by adding AI analytics nodes; centralised management of all nodes

> **Note:** Accuracy figures are design values under recommended installation conditions (camera position, mounting height, lighting, occlusion) and are verified per project during the Site Acceptance Test using the customer-approved test procedure. The Mather provides a camera placement guide and on-site calibration.

11 Platform Requirements

Component	Requirement
Deployment	On-premise, containerised (Docker); single-node or multi-node; air-gapped installation supported
AI analytics server	x86-64 server, Intel Xeon / AMD EPYC class
GPU	NVIDIA CUDA-capable GPU (e.g. L4, L40S, RTX A-series); model and quantity sized per project
Database server	x86-64 server; may be combined with the AI analytics server for smaller sites
DBMS	Microsoft SQL Server, or PostgreSQL with TimescaleDB
Storage	SSD for operating system and database; external storage (DAS / JBOD or iSCSI SAN) for event snapshots, event clips and report archives; capacity sized by camera count, event rate and retention period
Network	Gigabit Ethernet minimum; 10GbE recommended for large camera counts
Operating system	Ubuntu Server LTS or Microsoft Windows Server
Operator client	Any PC with a modern web browser, 1920 × 1080 or higher
Public display client	Display player / mini-PC with a web browser in kiosk mode (Windows 10 IoT or later supported)

> **Note:** Server sizing is provided per project based on camera count, video resolution and enabled analytics modules.

12 Licensing & Ordering Information

Part No.	Description	Unit	Type
EYS-CORE	Core Platform License: server, dashboard, administration, report engine	per site	Standard
EYS-CNT	Counting & Occupancy Module	per camera channel	Standard
EYS-QUE	Queue Analytics Module	per camera channel	Standard
EYS-FLW	Flow & Heat Map Module	per camera channel	Standard
EYS-DSP	Public Display Module	per display	Standard
EYS-API	Integration Module (REST / WebSocket / MQTT / SFTP)	per site	Standard
EYS-EVT	Event Detection Module	per camera channel	Optional

Part No.	Description	Unit	Type
EYS-AUD	Audience Insights Module	per camera channel	Optional
EYS-VRC	Visitor Recognition Module	per camera channel	Optional
EYS-BIZ	Business Data Module	per site	Optional
EYS-SUP-1Y	Software Maintenance & Support, 1 year	per site	Service

- Perpetual licenses registered in the end user's name
- Delivered with installation package, recovery package and documentation

13 Services & Support

- Camera placement design, installation, configuration and on-site calibration
- Factory and Site Acceptance Test (FAT / SAT) with test plan and test procedure
- Administrator and operator training (theory and hands-on), with training materials and recorded video
- User manual and maintenance manual (Thai / English)
- Local technical support in Thailand: telephone, e-mail, ticketing and on-site service

14 Reference Deployments

Project	Year	Scope
Smart Visitor Management System, energy-sector visitor centre, Rayong	2025–2026	20 cameras (Avigilon, Hikvision, Bosch, Pelco); visitor statistics and zone × time heat map; face check-in / check-out with QR fallback; fall, fight and weapon detection with real-time alerts; operator dashboard, reports and REST API; integration with a third-party visitor system; on-premise server with NVIDIA L4
Automotive exhibition booth analytics, Thailand International Motor Expo, Bangkok	2024	13 Hikvision DeepinView AI cameras with DeepinMind NVR; 14 days of continuous operation; more than 1.5 million detections; hourly and daily visitor traffic statistics per camera zone; audience demographics and staff / visitor separation

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