Delta iCMS Smart Community Management Platform

Data Empowerment

Efficiency Optimization

Data Sheet

DELTA

Delta iCMS Smart Community Management Platform

The Delta Intelligent Community Management System(iCMS), a comprehensive solution designed to address the complexities of managing high-volume IoT data streams in modern industrial parks and commercial complexes. Built upon a robust IoT infrastructure, the platform offers advanced data collection, storage, analytical processing, and visualization functionalities, empowers decision-makers with real-time operational insights and data-driven response mechanisms to optimize facility management efficiency.

Leveraging Delta's Energy Baseline (EnB) training model, the system delivers tailored energy conservation and operational efficiency solutions for enterprise-level requirements. Through its powerful analytical functionalities, the platform systematically identifies Significant Energy Use (SEU) patterns across multi-level operational hierarchies—from individual devices to production lines and environmental systems. The smart diagnostics framework enables actionable strategies for sustainable energy utilization and cost reduction.

FEATURES

Smart Platform： Integration for energy management, security monitoring, streetlight control, traffic flow identification, water and air quality monitoring.

Data Visualization： iCMS provides widgets including dashboard cards, statistical charts, live stream, 2D/3D maps, etc.

Adaptive Layout： System supports dynamic adjustments across diverse operational scenarios, ensuring optimal data representation.
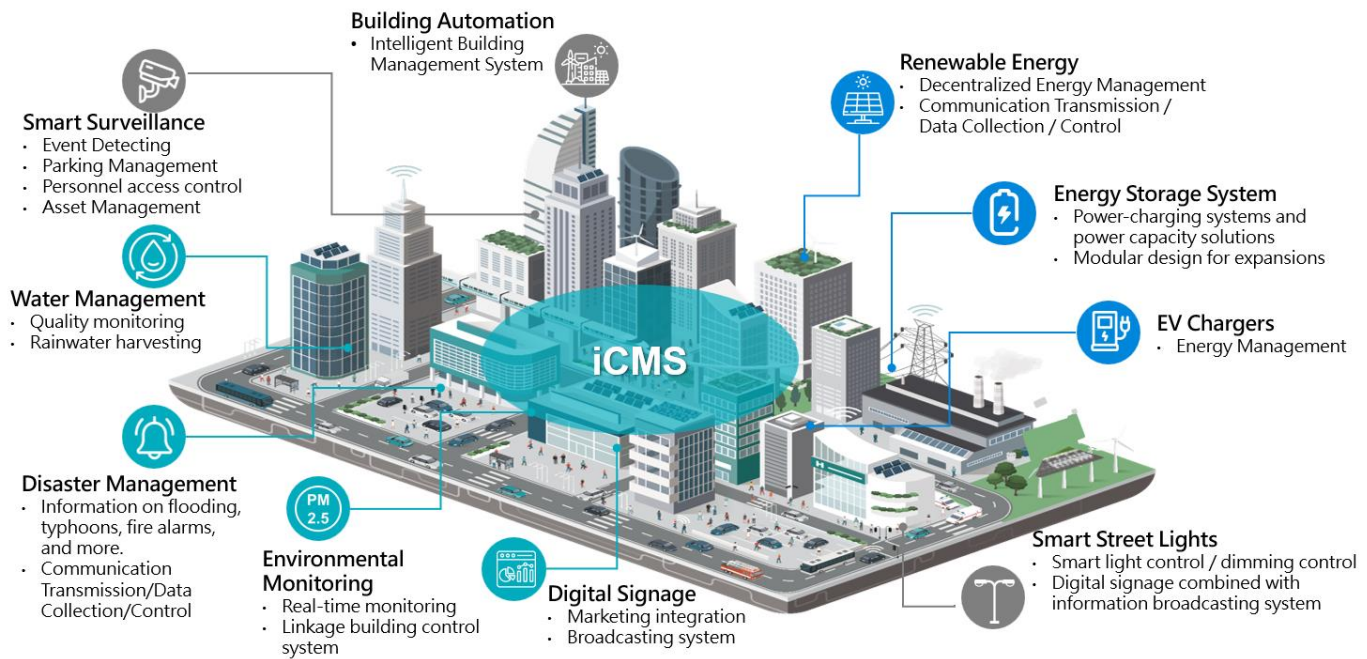
Exclusive Model： Built-in algorithms capable of processing up to 10 distinct Energy Impact Factors for model training, enables owners to establish Energy Baselines (EnB) and conduct energy consumption optimization assessments for individual Significant Energy Use (SEU) equipment, ensuring targeted and data-driven energy management.

Alert Service： Customized rules for device-specific alerts based on predefined mathematical formulas. The system triggers an alert event and delivers instant notifications to designated users via email or instant messaging APP.

A Platform for IoT Applications and More

Smart Surveillance
- Event Detecting
- Parking Management
- Personnel access control
- Asset Management

Water Management
- Quality monitoring
- Rainwater harvesting

Disaster Management
- Information on flooding, typhoons, fire alarms, and more.
- Communication Transmission/Data Collection/Control

Environmental Monitoring
- Real-time monitoring
- Linkage building control system

Building Automation
- Intelligent Building Management System

Digital Signage
- Marketing integration
- Broadcasting system

Renewable Energy
- Decentralized Energy Management
- Communication Transmission / Data Collection / Control

Energy Storage System
- Power-charging systems and power capacity solutions
- Modular design for expansions

EV Chargers
- Energy Management

Smart Street Lights
- Smart light control / dimming control
- Digital signage combined with information broadcasting system

Engineered to deliver a comprehensive suite of innovative service, the platform seamlessly aggregates and analyzes data from multi-source inputs, including sensors, actuators, and third-party monitoring or control systems. This unified integration facilitates enhanced operational efficiency, data-driven decision-making, and strategic oversight tailored to the demands of industrial parks and commercial complexes.

1. **Integrated Management Platform:** Delivers comprehensive smart city/community solutions, enabling unified, one-stop management and monitoring. The platform standardizes data from heterogeneous subsystems, facilitates seamless data integration and interaction, and consolidates information into clear, actionable visualizations for enhanced operational oversight.

2. **Data Analytics and Predictive Insights:** Analyzes data streams from sensors and equipment, offering advanced intelligent analytics solutions. These tools empower managers and decision-makers to extract critical insights, proactively identify potential issues, and improve decision-making accuracy.

3. **Resource Efficiency Optimization:** Enhances automated analytical capabilities, reducing reliance on manual management. The system optimizes resource allocation, improves operational efficiency, and minimizes waste across all operational layers.

4. **Safety and Emergency Response:** Integrates intelligent monitoring and emergency response systems to provide real-time situational awareness. This enables rapid identification and resolution of safety incidents, disasters, and other critical events.

5. **Environmental Sustainability:** Leverages real-time and historical operational data from equipment to enhance energy efficiency, reduce carbon emissions, and lower energy consumption costs. Supports sustainable development initiatives for eco-friendly operations.

6. **Innovation and Scalability:** Built on an open architecture, the platform facilitates continuous integration of emerging technologies. It bridges existing systems with future experimental innovations, fostering the development of new technologies and business models to drive ongoing evolution and innovation within the park ecosystem.

Key Features

Feature	Functions
Device Management	Provides a multi-level management mode for device groups, classification, models, and is free to set the configuration of data payload formats. Devices of the system can also be visualized on the platform according to latitudes and longitudes coordination.
User Authorization	Provides administrators with role settings as a management tool to grant permissions for login and other services.
Dashboard	Enables users to fully monitor the real-time status and trends of energy consumption with adjustable UI designs. ・ Visualization：Dark/light mode, multiple layout template, HEX color palette support ・ Diagrams：Provide various charts, time granularities, time range setting ・ Languages support：Traditional Chinese, Simplified Chinese, English
Energy Baseline	Analyzes energy performance of the system or specific devices by generating energy baselines (EnBs).
Incident Management	Sets alerts by the status, specific data value or threshold of the IoT device. ・ Incidents：Sets names, alert types, descriptions ・ Alarms：Sets alarms and silence periods for incidents. ・ Rules：Sets formulas for alerts triggering ・ Assign：Applies to designated equipment
Map & Floor Plan	Provides geospatial information. ・ Maps：Google Map、OpenStreetMap、Taiwan e-Map ・ Layers：Smart meter, panels, camera, streetlight & other devices ・ Status：Connected/ Connection timeout / Null
Surveillance Management	Selects cameras and arrange layouts on the dashboards for monitoring, and more features can be supported by Vivotek®. ・ Events Replay: Examines detected events independently with ease ・ Video Replay：Examines videos at designated datetime
Street Lights Management	Interface for users to add, edit, and manage smart streetlights equipment. The system integrates maps to display real-time status and dimming schedules. ・ Routine Schedule: Daily and weekly configuration to set on/off or dimming level

Feature	Functions
	・ Exception Schedule: Prioritizes the tasks based on repairing requirements, scheduled maintenance or other holidays

Overview

● **Equipment and User Permission Management**

Equipment Profile Creation

- ・ Group, category, model, serial number, display name, location, installation date, photo, warranty expirations, GPS coordinates, and notes.
- ・ Utilize an intuitive interface to define payload formats for incoming equipment data using no-code development.

Multi-Level Access Control and Role Assignment

- ・ Role Management：Assigns management permission to users based on predifined rules.
- ・ User Profile Setup：Create and maintain user profiles aligned with organizational structures, including department, job title, full name, email, and other essential details.
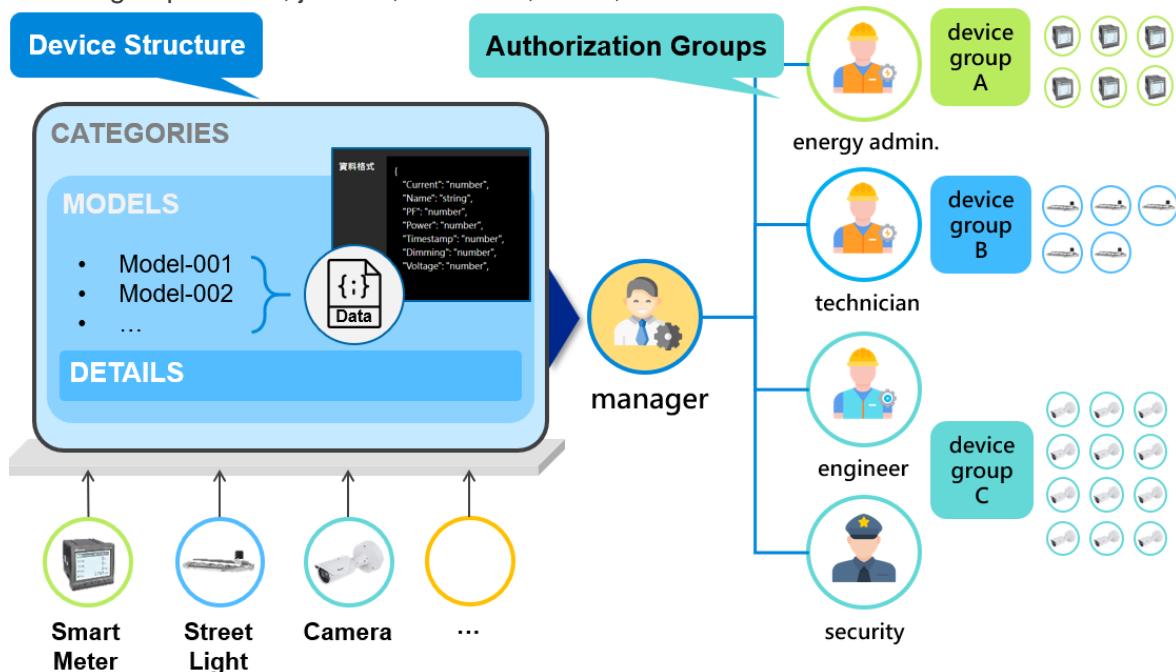
● **Maps and Floor Plans**

Spatial Data Visualization

- ・ Global View: Supports OpenStreetMap, Taiwan e-Map, Google Maps, etc.
- ・ Floor Plan View：Allow user to upload architectural drawings as base floor map.
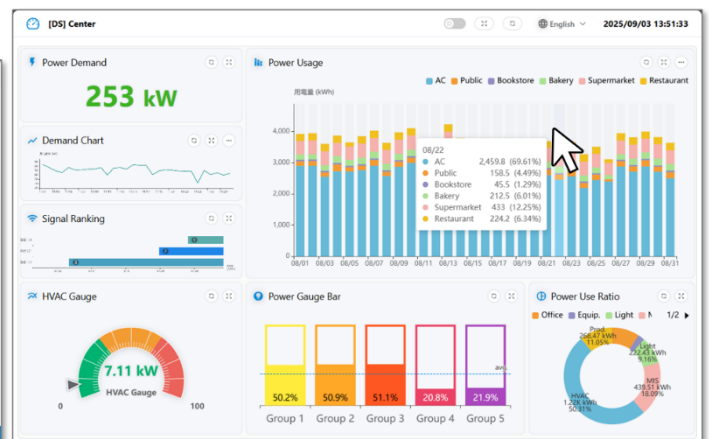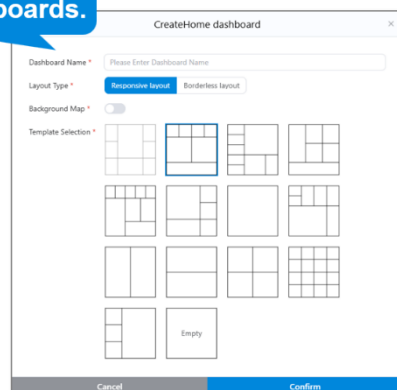
Global

Building

● Dashboards

The platform offers a variety of layout options to display energy management data in the most suitable format for user needs.

- ・ Diverse widgets：Supports multiple chart types from diagrams to CCTV for data visualization.
- ・ Dashboard templates：Provides pre-configured templates with the flexibility to resize and drag widgets for personalized layout customization.
- ・ Dynamic data comparison：Enables comparative analysis across specified time periods, including previous periods or year-over-year data, for actionable insights.

Metric Card | Bar Chart | Donut Chart | Comparison | Ranking | CCTV

Gauge | Line Chart | Combo Chart | Gauge Bar | Energy Baseline | iframe

Free to join charts and widgets into dashboards.

Aggregate Values with Ease
- Various time granularities with a minimum value of 1 minute.
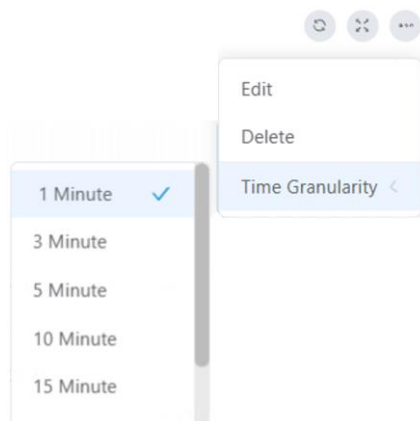
HEX color palette
- Freely customize chart data colors for better visual clarity.
- Supports gradient colors, transparency, and other graphical effects to design visually appealing data cards and charts.
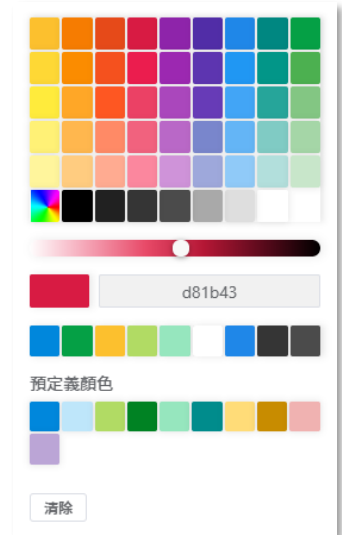
Share and Display Web Dashboards
- Access and display dashboards via web links by logging in through a browser, supporting a wide range of smart display devices.
- Allows users to create and cycle through predefined presentation scenarios. In read-only mode, users can view dashboard content pre-configured by system administrators.
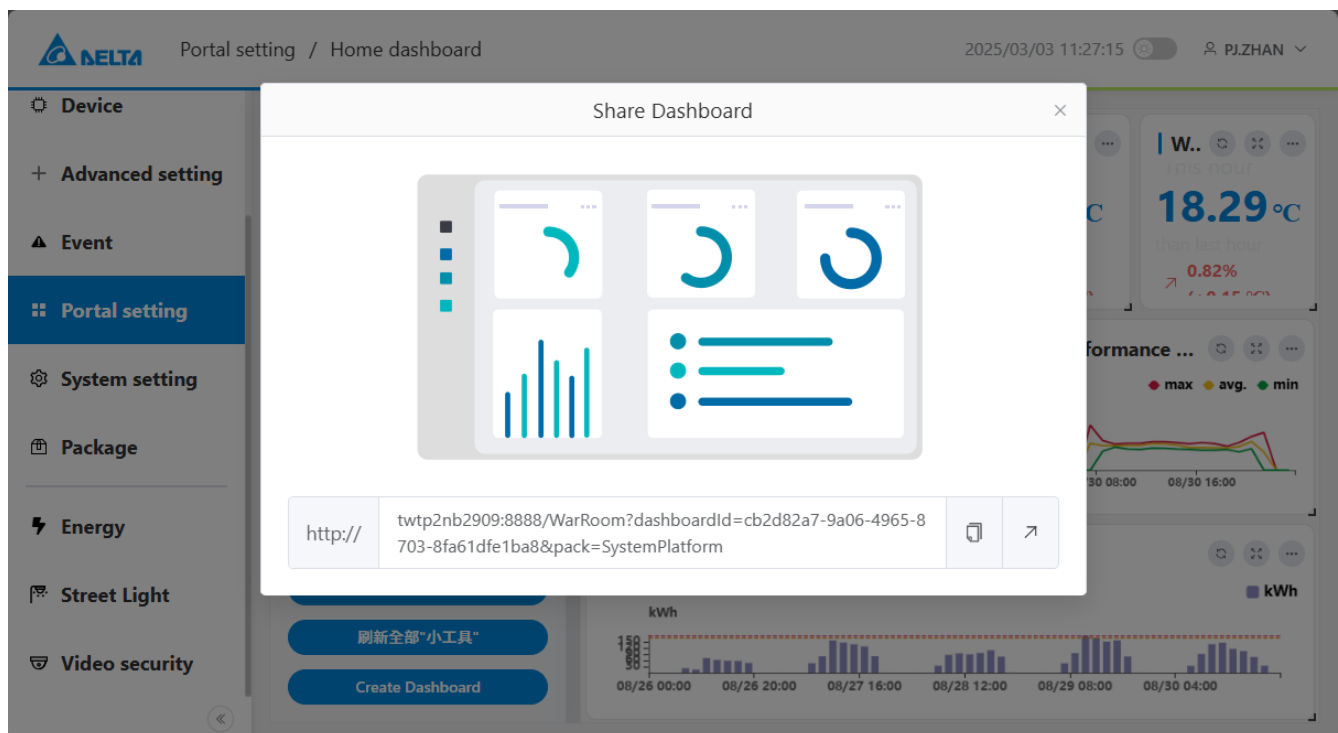
● Energy Baseline Modeling and Performance Analysis
The platform facilitates the creation of Energy Baselines (EnB) through model training, enabling comparative analysis of energy performance before and after improvement initiatives.
- Establishes energy baseline models based on owner-defined Energy Performance Indicators (EnPI) or variables.
- Provides four baseline performance metrics and two factor significance test values, along with recommended thresholds, to evaluate formula effectiveness and assist users in assessing baseline model quality.
- Supports up to 10 influencing factors as training parameters, allowing the creation of tailored

energy baselines that account for diverse environmental and equipment conditions.

Target Device *

TC_空調 / TC_空調-48點位 / 2_1_5_26 [TC_120RT]

Variable *

Variable	Data Source
Y	KW_RT [kw_RT]
X1	CHW Output Tp [chw_output_tp]
X2	CHW Input Tp [chw_input_tp]
X3	Accumulate kWh [acc_kwh]

Input EnPI factors from IoT devices for EnB model training

Factor X3
acc_kwh (Accumulate kWh)

Examine the EnB training results with recommend index & significance values

Baseline Performance Index

R²	CVRMSE	MBE	MAPE
0.9502	13%	-1%	--

Factor Significance

Affecting Factors	t-stats	P-value
cw_output_tp	0.6585	0.5119
cw_input_tp	11	0
acc_kwh	22.01	0

Analyze energy performance of the system or specific devices by generating energy baselines (EnBs).

- Develop potential actions for energy efficiency improvement after benchmarking performances.

Develop actions for energy efficiency improvement via EnB after benchmarking energy performances.
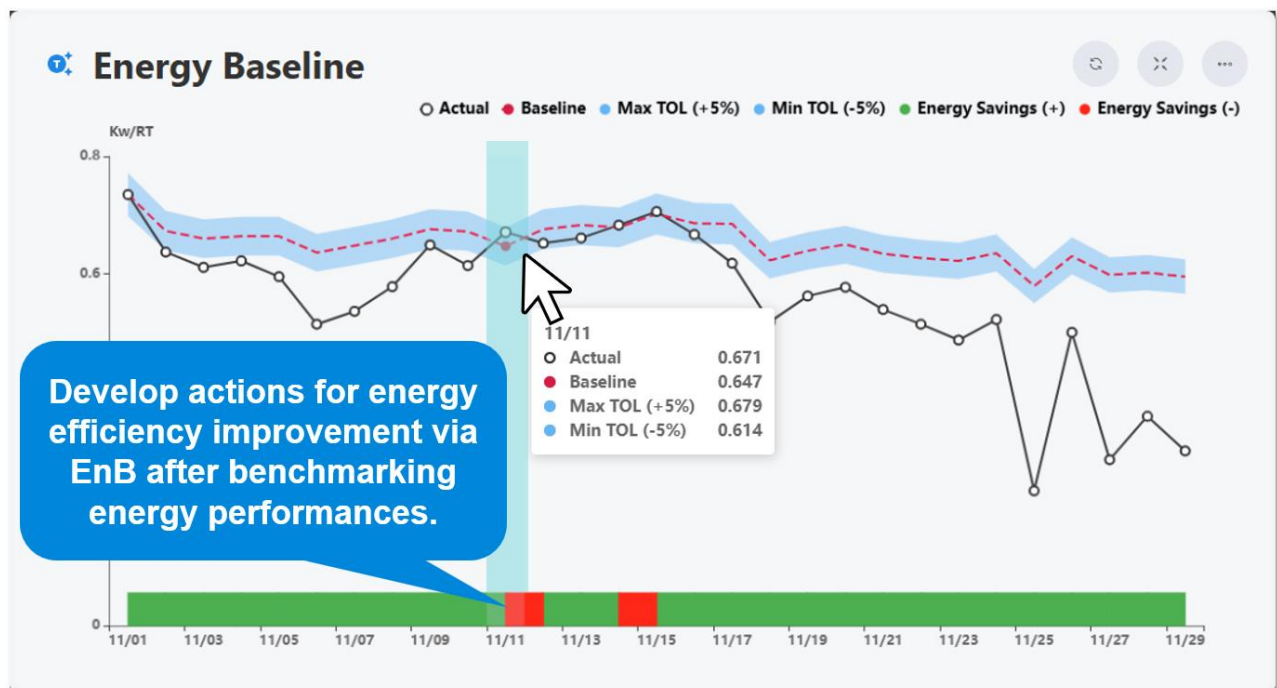
Input data sets to train the model for generating Energy Baselines (EnBs).

- Allows users to define unique Energy Performance Indicators (EnPI) based on electricity usage categories, equipment models, and environmental conditions.
- Provides interface to manage model lists, track model information, and monitor training progress for each model.

Name	Period	Device Model	Energy Performance In...	Affecting Factors	R²	Completion pr...	Last Update User	Last Update Time	Action
生產用電_V2	2024-10-01 ~ 2024-10-31	數位電表_2F	acc_kwh	3	0.989	▬▬▬	EASON.LIU	2024-11-25 16:51:00	⋮
空調用電	2024-11-01 ~ 2024-11-21	空調主機	acc_kwh	2	0.973	▬▬▬	EMILY.QH.WANG	2024-12-06 09:25:17	⋮
生活區用電	2024-11-01 ~ 2024-11-28	數位電表_1F	acc_kwh	3	0.973	▬▬▬	EMILY.QH.WANG	2024-11-28 09:09:03	⋮
空壓主機用電	2024-11-01 ~ 2024-11-15	空壓主機	acc_kwh	3	0.97	▬▬▬	EASON.LIU	2024-11-20 15:39:04	⋮
實驗設備用電	2024-07-01 ~ 2024-08-31	數位電表_3F	kwh	2	0.969	▬▬▬	PJ.ZHAN	2025-01-22 10:28:42	⋮

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- **Security Management**

  Comprehensive surveillance solutions for environment monitoring, real-time event detection and video analysis services.

  - Supports cameras connected to the NVR server structure or any streaming service on the cloud.
  - Detects motions and replays videos to help users examine and track potential threats.
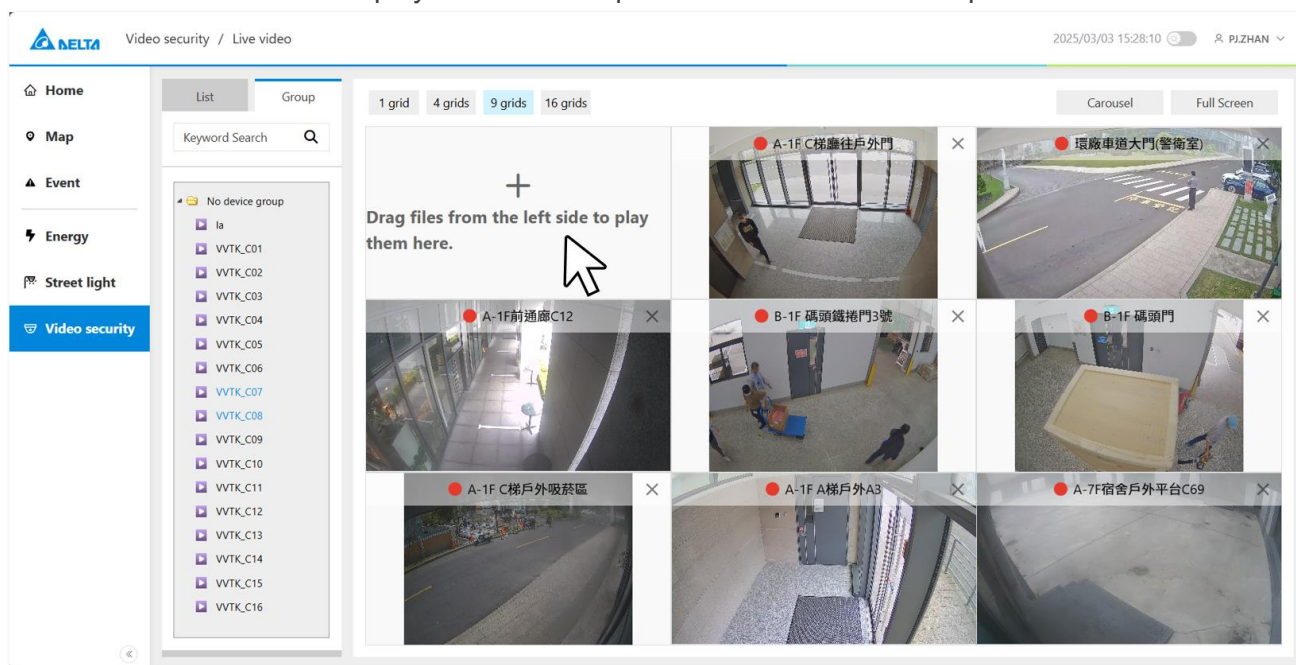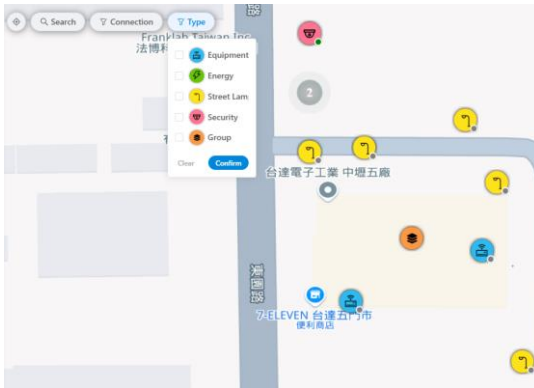

- Detecting specified events and automatically recording associated footage, allow quick retrieve and replay to review incidents.
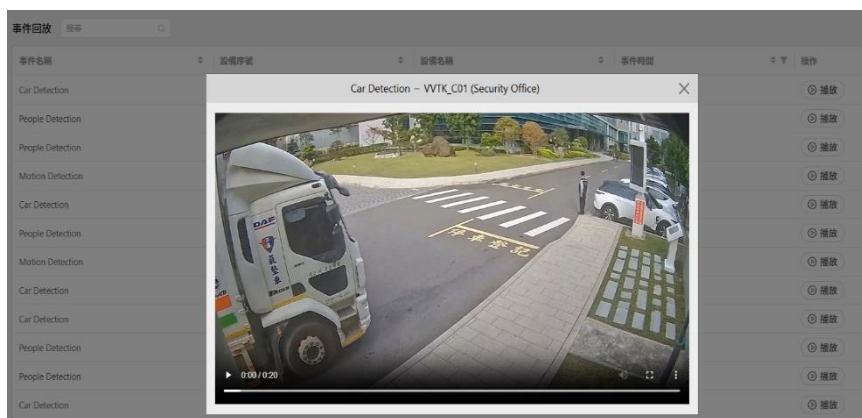
Map/Floor Plan Integration

- Device map for information querying. Support direct access to live feeds and device info.


Carousel Settings

- The platform allow user to select multiple IP cameras and sets time intervals for carousel display mode.

● **Street Lights Management**

Control the on/off and dimming level by schedule manager to extend the lifespan of facilities.

- Routine Schedule：Supports weekday-based scheduling as dimming routine for the smart street lights system.
- Prioritized Date Schedule：Allows users to specify custom on/off control or dimming adjustments for equipment, ensuring flexibility for maintenance days or special events.
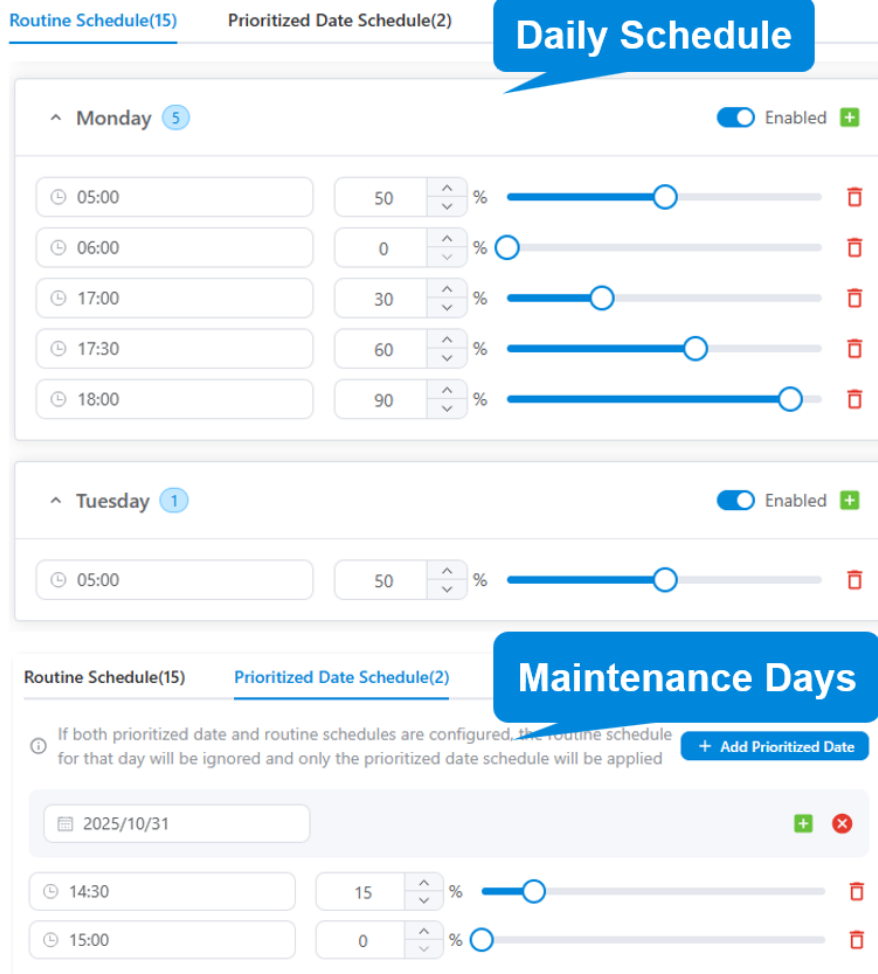
- **Incident Management**

  Allow users to define alert events and assign notification recipients based on equipment characteristics and site management requirements.

  - Rule Settings: Supports the creation of rules for various scenarios, such as equipment connection timeouts, data threshold breaches, and abnormal device statuses.
  - Notification: The system automatically sends notifications to designated personnel via email or instant messaging.
  - Alarms and Mute Settings: Supports silent mode for alarms during configured periods.

System and Data Security

Vulnerability Assessment

We safeguard the confidentiality, integrity and availability of data by conducting vulnerability scanning and black-box testing on the website system via WEBINSPECT® presented by Micro Focus LLC. The cybersecurity compliance standards include PCI DSS, DISA STIG, NIST 800-53, ISO 27001:2022, OWASP and HIPAA.

Source Code Security

The source code of iCMS meets the standards of OWASP Top 10, CWE/SANS Top 25, DISA STIG, and PCI DSS documents by scanning potential risks and vulnerability with Fortify® presented by Micro Focus LLC.

Components Analysis

Analysis of source code uses SonarQube® to inspect the security and dependency of components from third-parties for potential risks. The development team also ensures the iCMS has permission for the MIT License of open source packages.

Data Encryption

Utilizing TLS technology, which is widely adopted in the field of cybersecurity, and generating encryption keys through the SHA-256 secure hashing algorithm, we safeguard customers' sensitive data while offering the advantages of high security, high efficiency, and low computational overhead.

System Requirement

Server	
ITEM	**SPEC**
CPU	2.5 GHz, 8 cores
Memory	32 GB
Hard Drive	1 TB

Other Specifications

ITEM	SPEC
Supported Browsers	Chrome, Edge, Firefox (Latest version and all versions in the past 12 months)
Supported OS	Ubuntu 20.04 LTS or later

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