

Delta iCMS Smart Community Management Platform

Data Empowerment

Efficiency Optimization

Data Sheet



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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.





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



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 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 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.



• 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 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.



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.



Baseline Performance Index

Examine the EnB training results with recommend index & significance values

R ² ①	CVRMSE ①	MBE ①	MAPE ①
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.



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.

Manage models table by data period, completion, EnPl, factors and EnB performance index.

Search	Q												Add E	nergy Baseline
Name	÷	Period	÷	Device Model	÷	Energy Performance In 🗘	Affecting Factors 🗘	R² 🔞	÷	Completion pr ‡	Last Update User 🛛 🗘 🗑	Last Update Time	¢Ψ	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 16:5	1:00	:
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 09:2	5:17	:
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 09:0	9:03	:
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 15:3	9:04	:
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 10:2	8:42	:
Item 21 to 30, Total 62	items									< 1 2	3 4 5 6	> 10/page	 ✓ G 	o to 1

• 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.

設督	型號 ~	關鍵字	授募 重度	輸播間隔 20
	設備型號	≑ 設備序號	☆ 設備名稱	- 設備位置
	VIVOTEK_子彈型	VVTK_C10	VVTK_C10(A-1F大廳前通廊A2)	**
~	VIVOTEK_子彈型	VVTK_C11	VVTK_C11(A-1F A 梯戶外A3)	
	VIVOTEK_子彈型	VVTK_C12	VVTK_C12(A-7F宿舍戶外平台C69)	-
~	VIVOTEK_子彈型	VVTK_C13	VVTK_C13(B-RF F梯戶外A40)	
-	VIVOTEK_子彈型	VVTK_C14	VVTK_C14(C-RF(戶外) A37)	
	VIVOTEK_子彈型	VVTK_C15	VVTK_C15(A-1F水果攤工作區)	
	VIVOTEK_子彈型	VVTK_C16	VVTK_C16(A-1F餐廳樂玩咖啡)	
示筆	11 至 17 頂結果,共 17	10		第一頁 1 2 最末期

選擇輪播影像

• Street Lights Management

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

- Routine Schedule : Supports daily and weekly schedules. In the event of scheduling conflicts, the system executes tasks based on predefined priority levels.
- Exception Schedule : Allows users to specify custom on/off control or dimming adjustments for equipment outside of routine schedules, ensuring flexibility for special events or conditions.



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. Users can also configure recurring notification intervals for ongoing alerts.

			Create	Warning Event			
W	arning Event	Warning Rule	Applicable Equipment				
* Ec	quipment Model	Please choose	Equipment Classification	~	Please choose Equipment Model		~
			Warning Rule (If any rule is n	net, an alarm ever	nt will be triggered)		
#	Rule		Enabled Status			Action	
1	current >	> 50		•	D	C 🕯	
2	freq >= 5	50		•	D	2 🕯	

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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