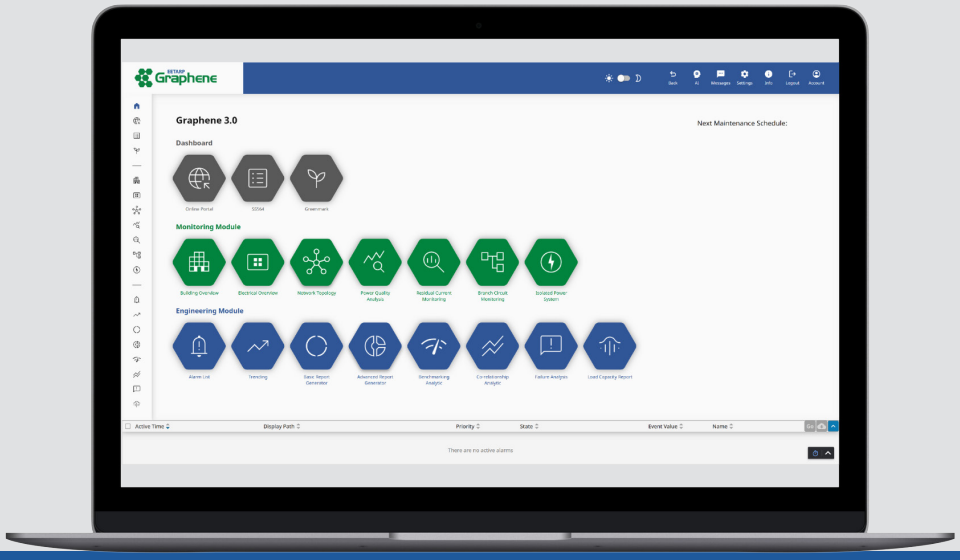
EETARP
Part of Bender



EETARP GRAPHENE

Eetarp Graphene, our highly customizable and scalable analyzing, monitoring and management solution ranging from

- Building Management Systems (BMS)
- Energy Management Systems (EMS/PQMS)
- Datacenter Infrastructure Management Systems (DCIM)
- Electrical Safety Management Systems (ESMS)

Eetarp offers everything from one hand with top-tier support across APAC to serve our customers in the best way possible.

EETARP Graphene

CONTENT

EETARP Graphene

PART 1
Introduction

> “Data is getting more important in today’s environment; however unmanaged data is becoming more of a liability rather than an asset.”

Michael Breuer
CEO Bender GmbH & Co.KG

Which would you choose?

Is more data always better?

Having more data doesn't always lead to better results. In fact, too many options can complicate decision-making and hinder effective management.

Instead, selecting the right data, analyzing it with the right tools, and subsequently presenting the result with a recommendation for your current situation is required to promote the best possible outcome.

EETARP Graphene

PART 1
Eetarp Graphene Introduction

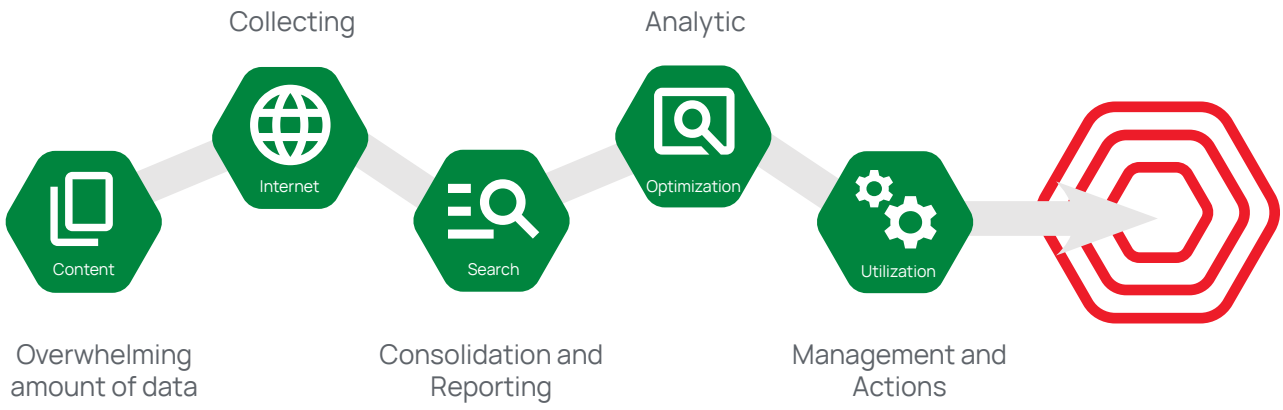
Why Unmanaged Data is a Liability?

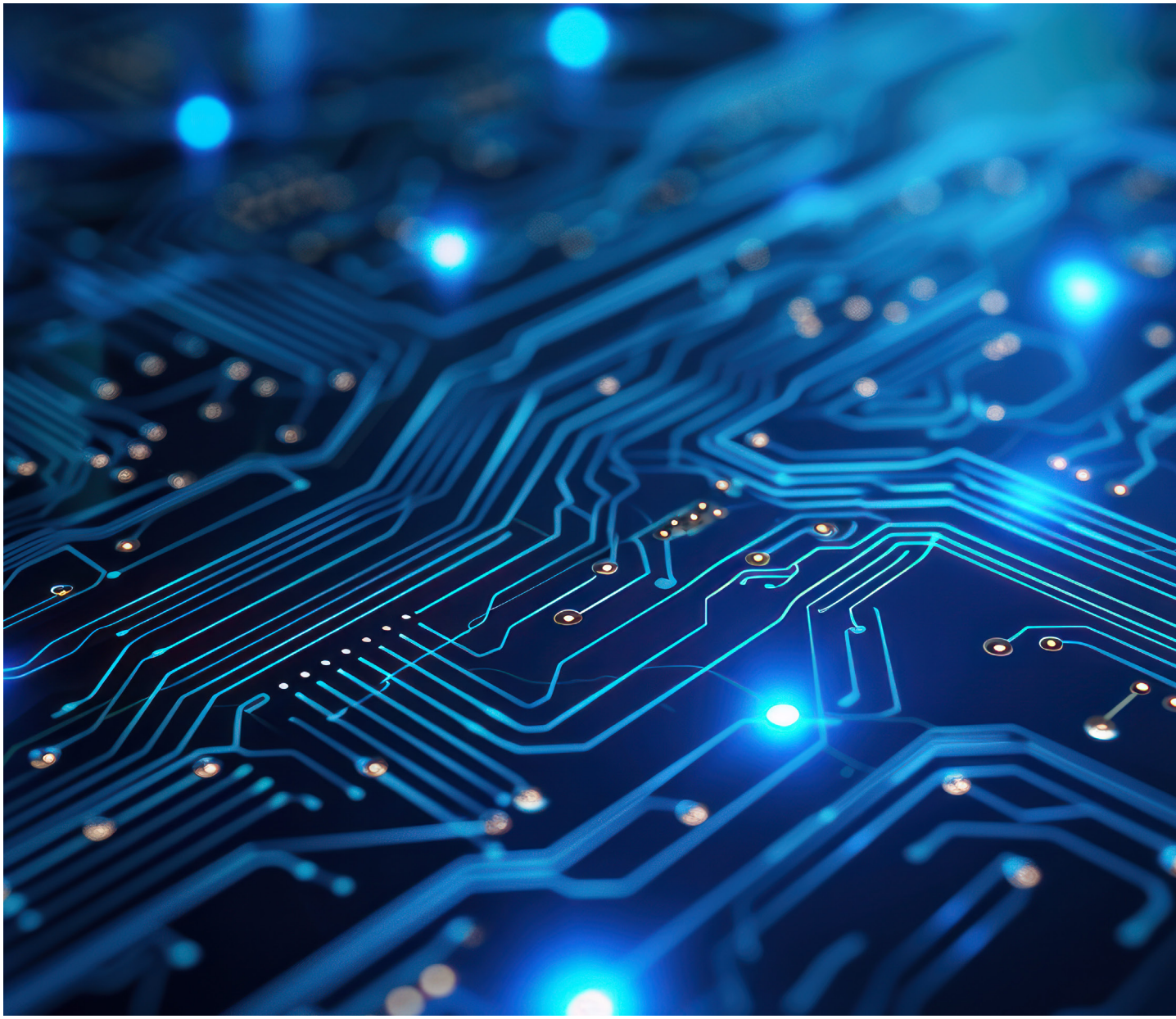
Data quality is essential for generating accurate insights. Unmanaged data often lacks consistency and accuracy, leading to incorrect conclusions and misguided decisions. Effective data management ensures high data quality, facilitating better business outcomes.

Imagine the internet without search engines.

Even though you have access to the data, without a proper system to screen and select the right data it's the same as having no information at all.

It doesn't stop at that point; further optimizations increase the quality and utilization of the data available to ensure maximum efficiency.





A software platform like Eetarp Graphene Software aggregates, cleanses, and securely stores this data, applying advanced analytics to identify consumption patterns, detect anomalies, and forecast future needs.

The software generates detailed reports, providing actionable information on high consumption areas and power quality issues. This turns overwhelming data into meaningful insights, offering cost reduction strategies, efficiency improvements, and future energy management guidance.

EETARP Graphene

PART 1
Eetarp Graphene Introduction

Overview

Welcome to Eetarp Graphene, an IoT-based analysis, monitoring and management solution designed to revolutionize data interaction. With the explosion of IoT devices and data, businesses face challenges in managing, analyzing, and securing information.

Eetarp Graphene offers a seamless blend of cutting-edge software and hardware solutions. Our platform leverages the latest IoT advancements to provide comprehensive monitoring across industries. From datacenters and manufacturing to healthcare, Eetarp Graphene delivers unparalleled insights and operational efficiency.

Our system ensures your data is collected and transformed into actionable items. State-of-the-art sensors and resilient servers work with our software to capture and store data accurately. This synergy enables real-time monitoring and predictive analytics, keeping you ahead of potential issues.

In a world prioritizing sustainability, Eetarp Graphene empowers informed decisions that drive economic and environmental benefits. Reduce downtime, optimize resources, and enhance productivity with our scalable and adaptable platform.

Embrace the future of smart monitoring with Eetarp Graphene. Experience precision, reliability, and efficiency like never before. Welcome to a new era of monitoring excellence.

Product Description

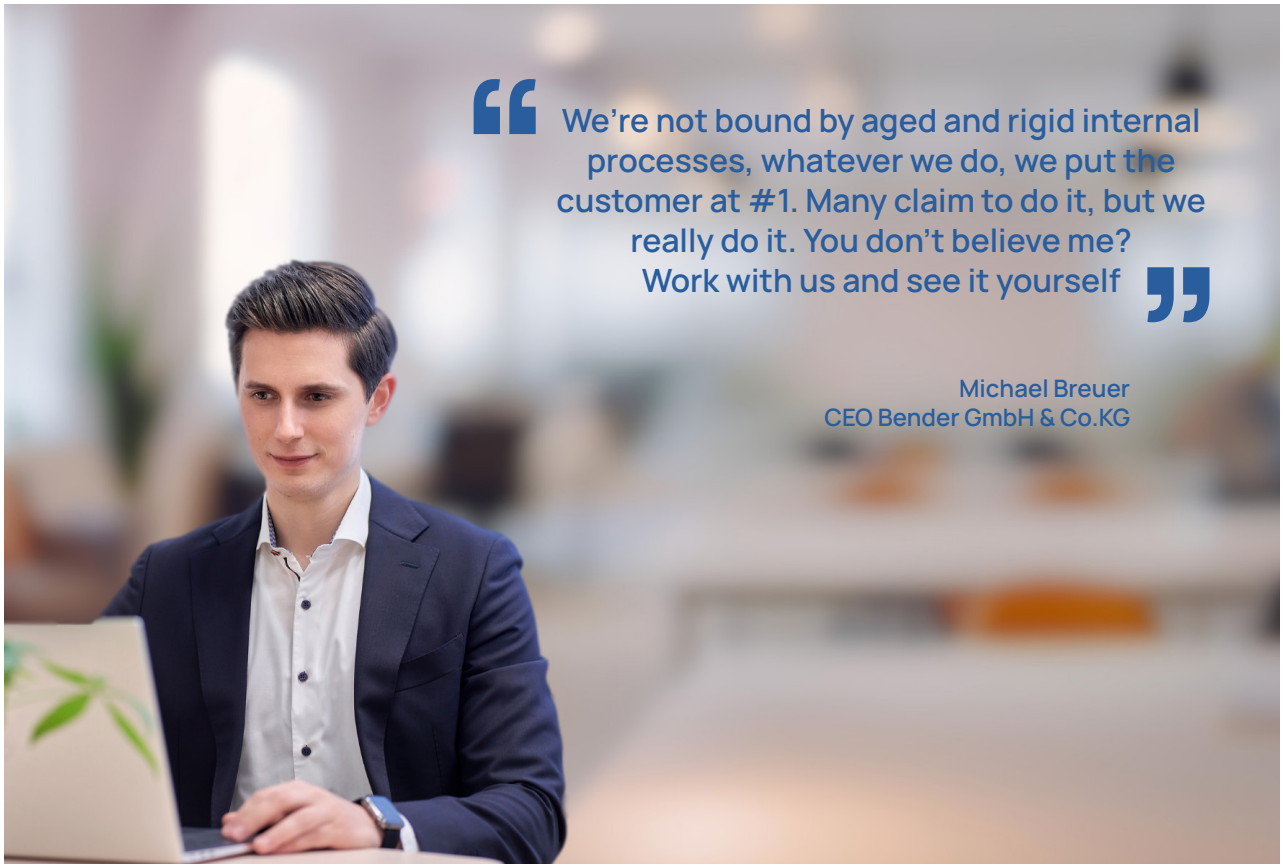
Eetarp Graphene is a modular and scalable management system for various applications. It not only assists the user in detecting potential failure but also enables users to diagnose and analyze the potential issue in order to increase the overall system reliability and efficiency. At the same time, it delivers actionable insights through highly customizable reporting tools.

This enables Eetarp Graphene to work as a centralized solution to combine and transfer data from multiple locations through intranet or internet, from systems like Building Management Systems, Lighting Management Systems, Solar Systems, and Chiller Monitoring Systems. The open communication interfaces allow the integration of IoT sensors and electrical, mechanical, environmental, facilities equipment. This includes specialized solutions like:

- Building Management Systems (BMS)
- Energy Management Systems (EMS/PMS)
- Datacenter Infrastructure Management Systems (DCIM)
- Electrical Safety Management Systems (ESMS)

This gives the user an in-depth insight into the system's entire data at any time, with real-time monitoring, alarming, and analysis. Whenever and wherever needed.

PART 1
Eetarp Graphene Introduction



Features

Customizable and Flexible Solutions:

Eetarp Graphene offers customizable solutions tailored to the specific needs of your business, ensuring that you get the most relevant and effective monitoring capabilities

Seamless Integration of Hardware and Software:

Unlike other platforms that may offer either hardware or software solutions, Eetarp Graphene provides a fully integrated system. Our state-of-the-art sensors and resilient servers work harmoniously with advanced software to ensure seamless data collection, storage, and analysis.

Real-Time Monitoring and Predictive Analytics:

Eetarp Graphene enables real-time monitoring and offers predictive analytics, allowing businesses to anticipate and address issues before they escalate. This proactive approach helps in reducing downtime and maintaining operational efficiency.

Scalability and Adaptability:

Eetarp Graphene is designed to grow with your business. Our platform is highly scalable and adaptable, ensuring it meets the evolving demands of various industries and keeps up with technological advancements.

Comprehensive Industry Applications:

Eetarp Graphene caters to a diverse range of industries including datacenters, manufacturing, healthcare, and environmental monitoring. This versatility makes it a one-stop solution for various business needs.

Enhanced Data Security and Reliability:

With the exponential growth of data, security is paramount. Eetarp Graphene prioritizes data security and reliability, ensuring that your critical information is protected and accessible when needed.

Sustainability and Resource Optimization:

Eetarp Graphene helps businesses achieve their sustainability goals by optimizing resource utilization. Our platform aids in reducing waste, enhancing energy efficiency, and supporting environmentally-friendly practices.

User-Friendly Interface and Easy Deployment:

Eetarp Graphene boasts an intuitive user interface and easy deployment process. Businesses can quickly implement and start benefiting from our platform without extensive training or setup time.

Proactive Maintenance Features:

Our platform includes proactive maintenance features that help identify potential issues early, preventing costly repairs and extending the lifespan of equipment.

Comprehensive Data Insights:

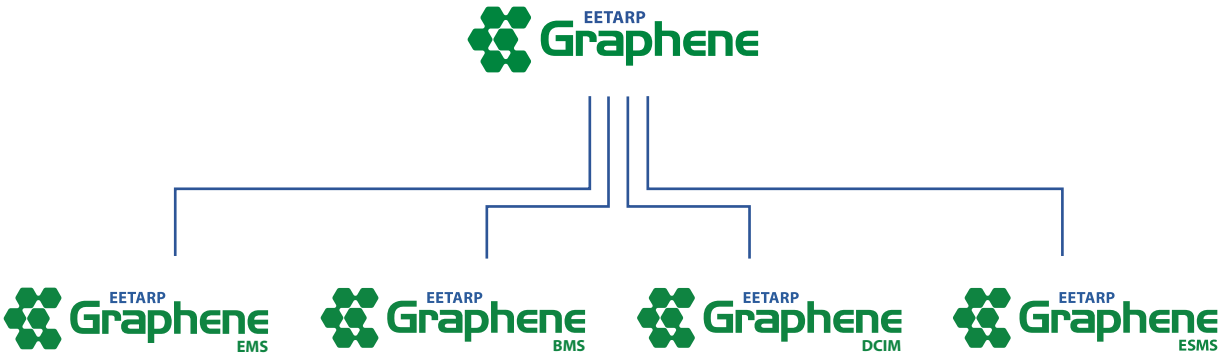
Eetarp Graphene transforms raw data into actionable insights,empowering businesses to make informed decisions that drive performance and growth.

EETARP Graphene

PART 2
Eetarp Graphene Brands

Eetarp Graphene

Unlock Your Potential: Eetarp's innovative software-based analysis, monitoring and management solution offers unparalleled insights into your facility's entire data set, revolutionizing the way you handle data, optimizing your resources, and ultimately driving success for your organization.



Eetarp Graphene EMS

Mastering Efficiency: Maximize efficiency by consolidating and managing data with Eetarp's Energy Management System- (EMS), Power Management System- (PMS), and Power Quality Management Systems (PQMS) to boost operational effectiveness and ensure reliable energy usage throughout your organization.

Eetarp Graphene BMS

Seamless Integration, Superior Control: A comprehensive Building Management System (BMS) for hospitals and commerical buildings to streamline operations, enhance energy efficiency, and elevate the overall management of your facilities, all from a single, intuitive platform.

Eetarp Graphene DCIM

Optimize Your Data Centre: Our innovative Data Center Infrastructure Management (DCIM) integrates diverse equipment within Data Centers. With Eetarp Graphene, you gain unparalleled insights into your Data Center's entire data, providing in-depth and real-time information at your fingertips.

Eetarp Graphene ESMS

Ensure Compliance and Electric Safety Management System(ESMS): Eetarp Graphene helps you detect malfunctions at an early stage and eliminate the causes in a cost-effective and practical way. This guarantees high installation and operational safety and reduces costs.

EETARP Graphene

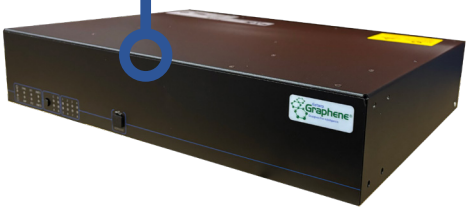
PART 3
Eetarp Graphene Architecture

FIELD EQUIPMENT

Highly compatible with Eetarp Graphene Meter Series. Functionality guaranteed.

REMOTE TERMINAL

The Eetarp Remote Terminal Unit (RTU) serves as a data concentrator and protocol converter which feeds the server with all required information for further processing.



SENSORS	UPS	VSD	CHILLERS
CRAC / HVAC	GENERATOR	FCU / AHV	COOLING TOWERS

SERVER

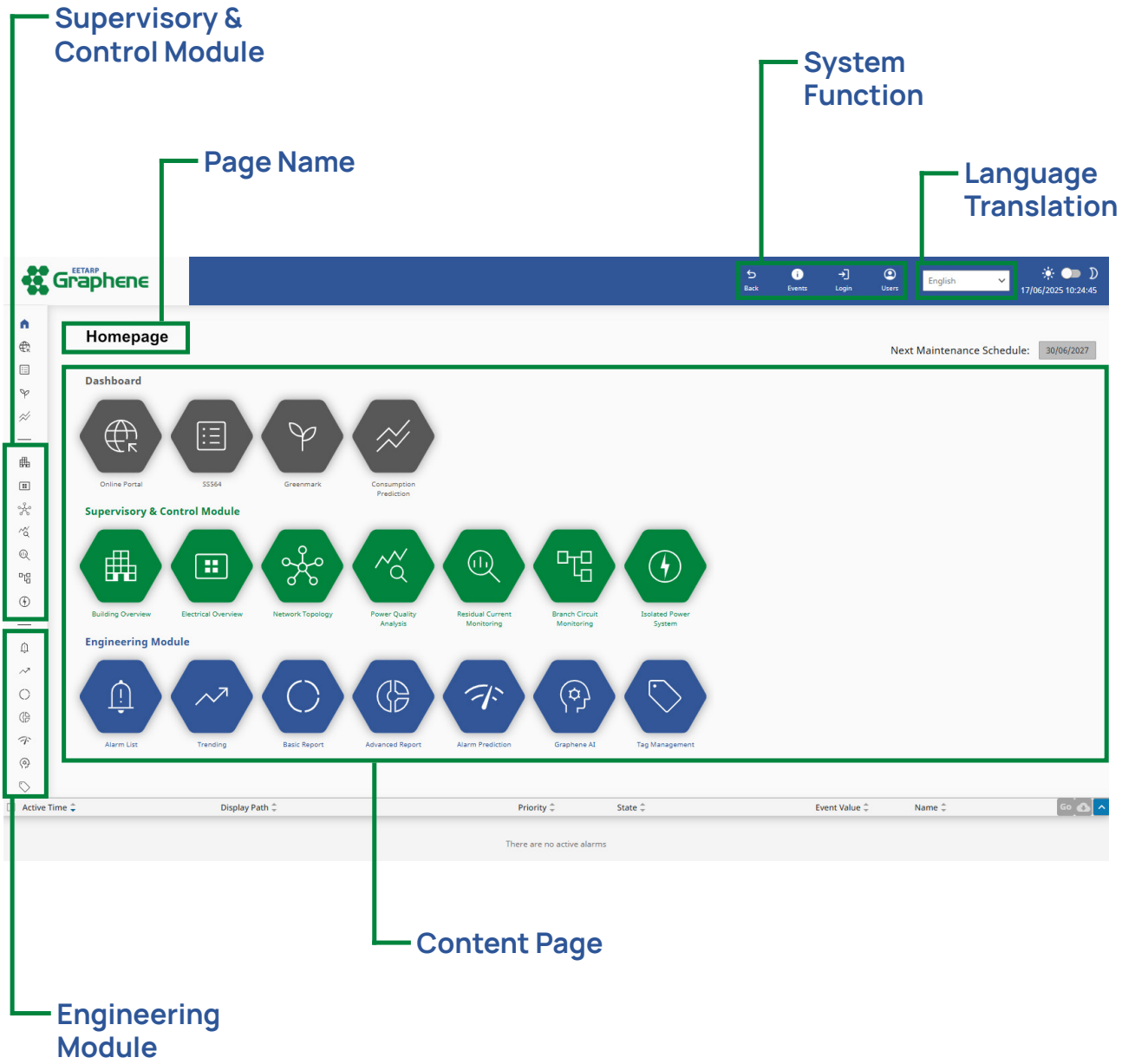
Our server provides you with data logging, data communication, system management including a local workstation.

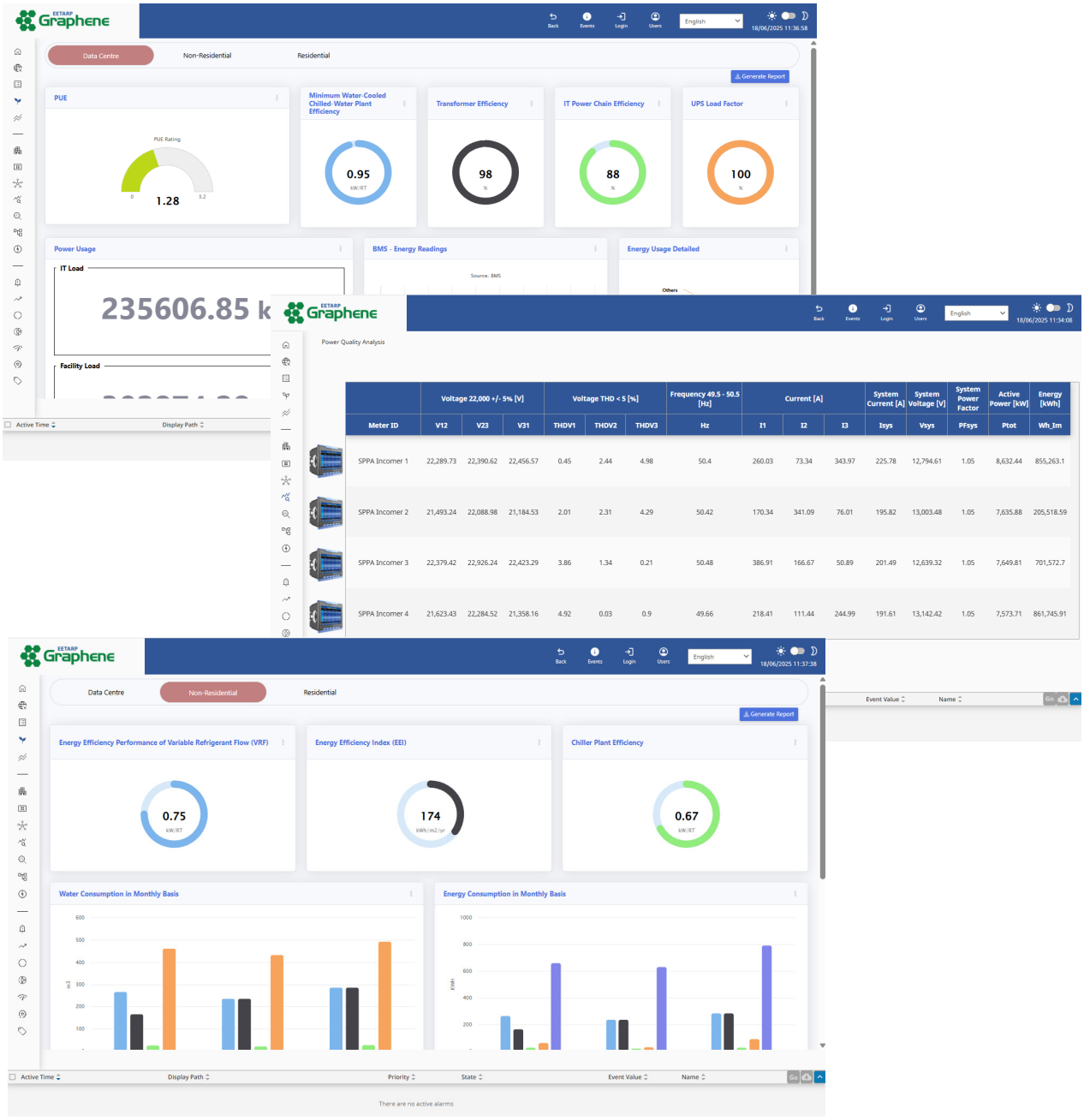
SOFTWARE

Highly customizable, modular software provides live monitoring, and management capabilities of your facilities.

EETARP Graphene

PART 3
Eetarp Graphene Design





EETARP GRAPHENE – DESIGNED TO REFLECT YOUR IDENTITY

Graphene's visual design is fully adaptable to your needs. From module layout to color schemes, the system interface can be customized to match your corporate branding. We can even incorporate your individual logo, ensuring the system looks and feels like an extension of your organization. Whether visually or functionally, Eetarp Graphene becomes uniquely yours.

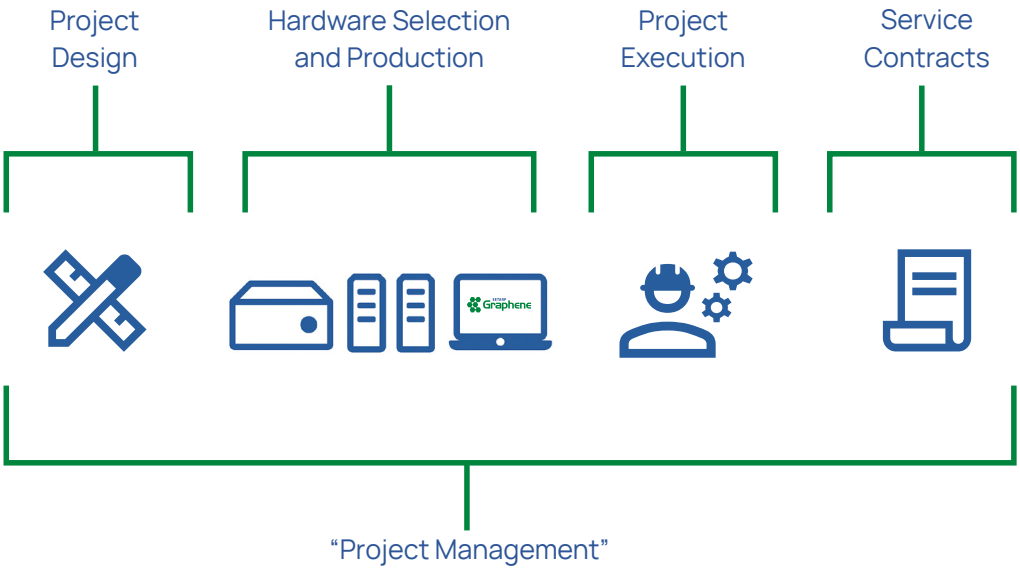
EETARP Graphene

PART 4
Eetarp Graphene from “One-Hand”

Make Complex things more Simple

In today’s competitive market, achieving project success requires more than just sourcing the right components. It demands a holistic approach in which every element, from initial concept to final delivery, works seamlessly together. That’s where we come in.

At Eetarp, we don’t just provide parts of the puzzle; we support your entire project lifecycle — ensuring smooth execution, operational success, and return on investment.



Our support:

Consultation:
With more than 20 years of experience, our team of specialists will assist you in selecting the optimal hardware and software tailored to your project's needs. From sourcing to production, we ensure high-quality components that meet your specifications and standards.

Integration:
Seamlessly integrate cutting-edge software solutions that enhance the functionality and performance of your hardware. Our software is designed to be intuitive, reliable, and fully compatible with your systems.

Project Execution:
Experience flawless project execution with our experienced project managers.
We coordinate every phase of the project, ensuring deadlines are met, budgets are adhered to, and quality is never compromised.

Service and Support:
Our commitment to your success extends beyond project completion. We offer ongoing service and support, providing you with peace of mind and ensuring your operations run smoothly.

EETARP Graphene

PART 5
Eetarp Graphene Module Overview

	EETARP Graphene EMS	EETARP Graphene BMS	EETARP Graphene DCIM	EETARP Graphene ESMS
Engineering Module				
Alarm Analysis & Management	x	x	x	x
Basic Report	x	x	x	x
Trend Analysis	x	x	x	x
Real-Time Monitoring	x	x	x	x
Advanced Report*	x	x	x	x
Alarm Notification*	x	x	x	x
Alarm Root Cause Analysis*	x	x	x	x
Animated 3D Image*	x	x	x	x
API / Third Party Connectivity*	x	x	x	x
Centralised Monitoring*	x	x	x	x
Dashboard*	x	x	x	x
Eetarp Graphene AI*	x	x	x	x
Language Translation*	x	x	x	x
SQL Integration*	x	x	x	x
Energy Demand Analysis*	x	x	x	
Energy Forecast Analytics*	x	x	x	
Sankey Diagram*	x	x		
Temperature Heatmap*		x	x	
Supervisory & Control Module				
Branch Circuit Monitoring*	x	x	x	
Power Management*	x	x	x	
Electrical Overview*	x	x		
Electrical Infrastructure Monitoring*	x	x		
Power Quality Analysis (ITIC/SEMI F47/...)*	x	x		
Environmental Monitoring*		x	x	
Fire Detection & Suppression*		x	x	
HVAC Water Management System*		x	x	
HVAC Air Management System*		x	x	
Water Leak Detection System*		x	x	
Lighting Control*		x		
Plumbing & Sanitary Management System*		x		
Isolated Power System*				x
Residual Current Monitoring*				x

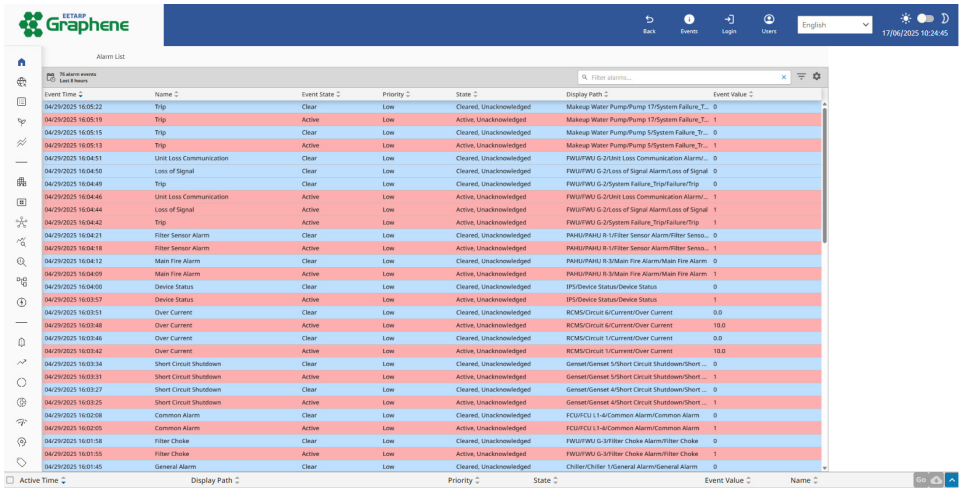
* Advanced Option

PART 5
Engineering Module

Alarm Analysis & Management

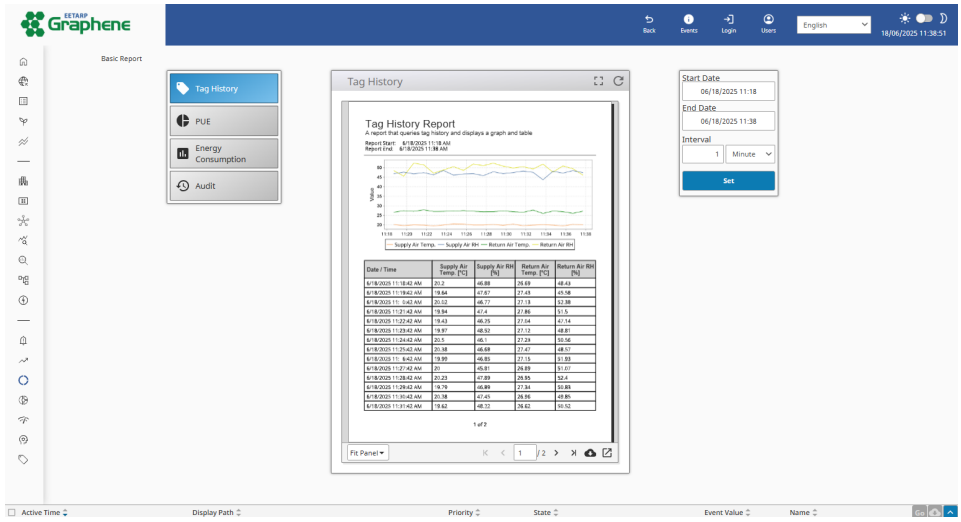
Alarm analysis and management highlights critical events across the system, helping users locate and resolve issues. The ring buffer logs all active alarms with:

- Time received in milliseconds as a unique signature
- Additional information such as cause and value
- Time cleared
- Time acknowledged



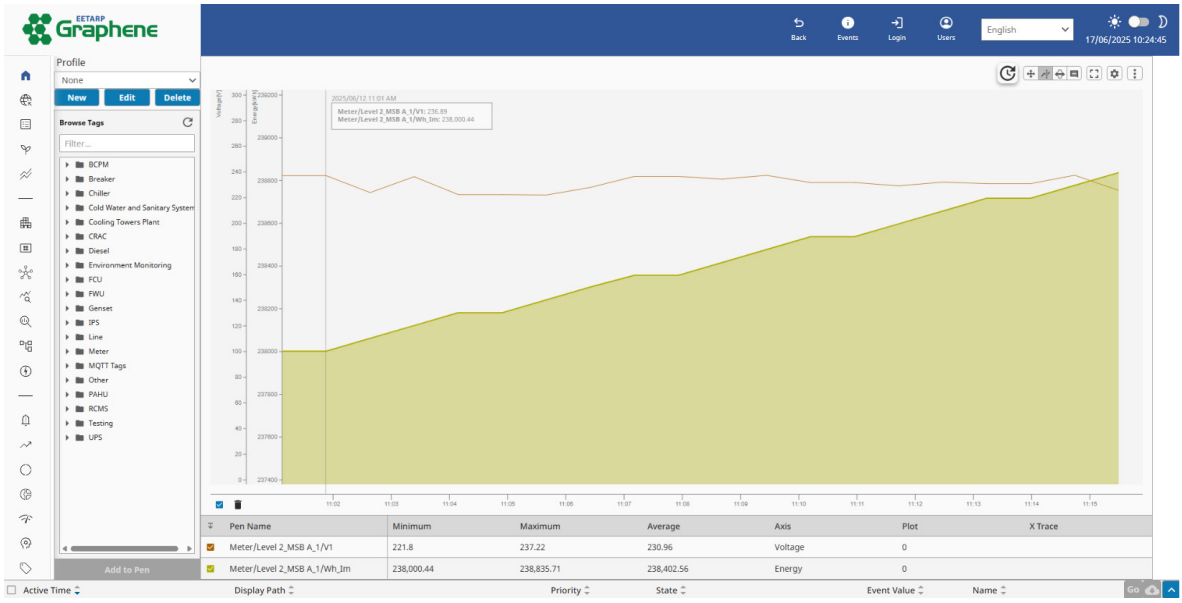
Basic Report

Basic report module evaluates, calculates, filters, and presents the processed data saved in the archive database. The result will be shown in the report viewer window. The reports can be customized into graphical presentations such as pie charts, bar charts, texts (Microsoft Word) and Excel (Microsoft Excel). By default, Eetarp Graphene generates reports in pre-defined .txt or Excel formats.



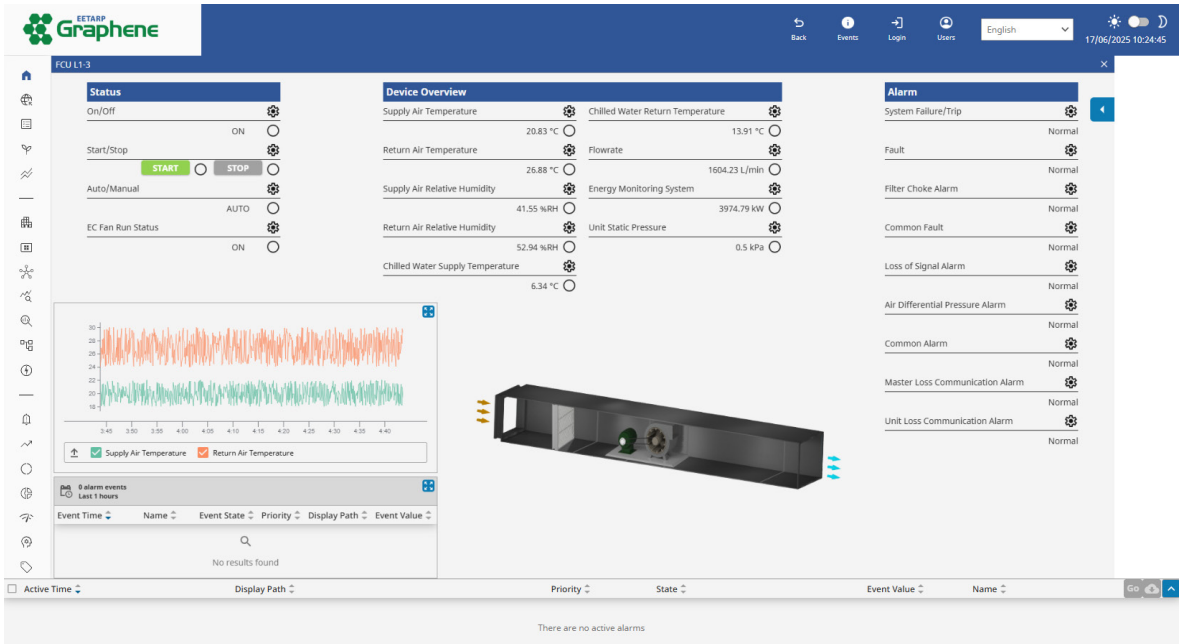
Trend Analysis

Trend analysis provides clear insights through data trending of logged values over time. With selectable durations, users can easily visualize performance patterns, identify anomalies, and make informed decisions based on historical trends.



Real-Time Monitoring

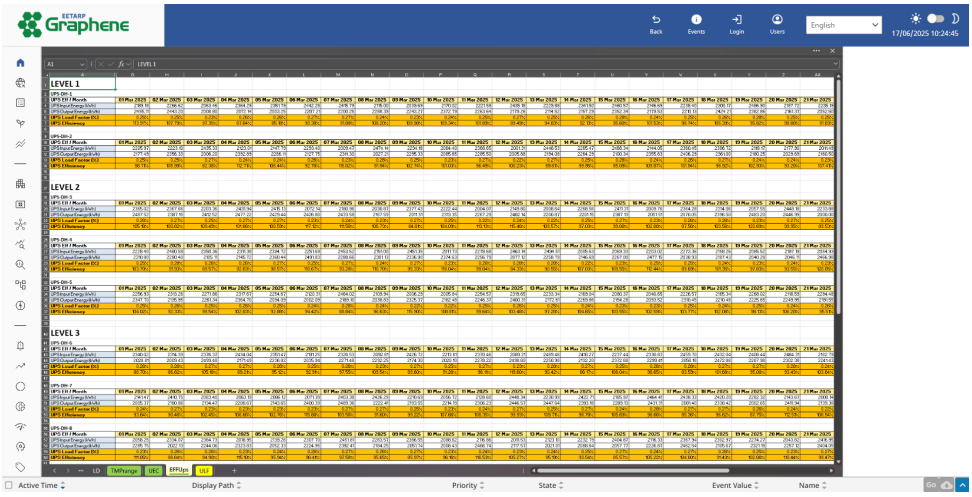
Real-Time Monitoring provides continuous, live visibility of key system parameters — such as temperature, flowrate, and alarm status—through intuitive dashboards. With remote access capabilities, it enables facilities teams to monitor performance, detect faults early, and respond quickly, improving operational efficiency and reducing downtime.



PART 5
Engineering Module

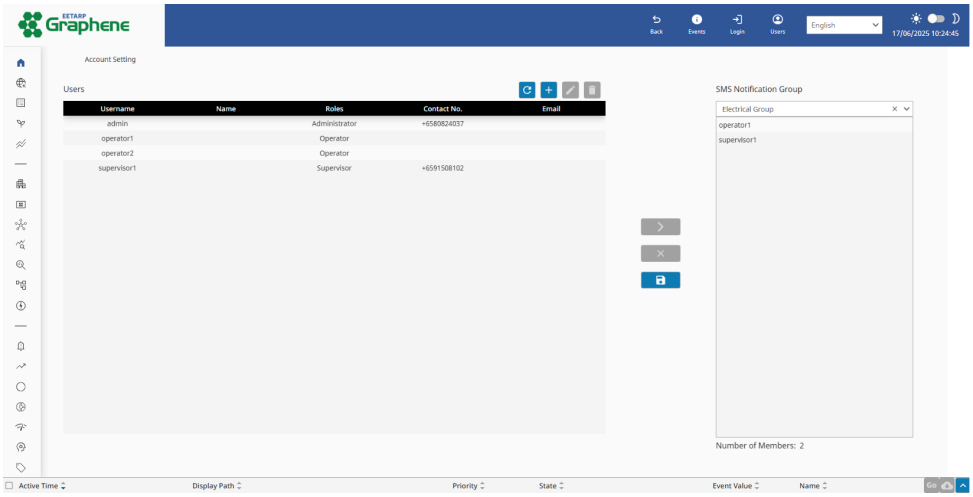
Advanced Report

The Advanced report module offers extensive flexibility to create reports tailored to any application or preference. It automatically processes data into pre-configured report templates and exports to text, Excel, web pages, or PDF. Reports can be sent to local/remote drives, email, or FTP, saving significant time in report generation.



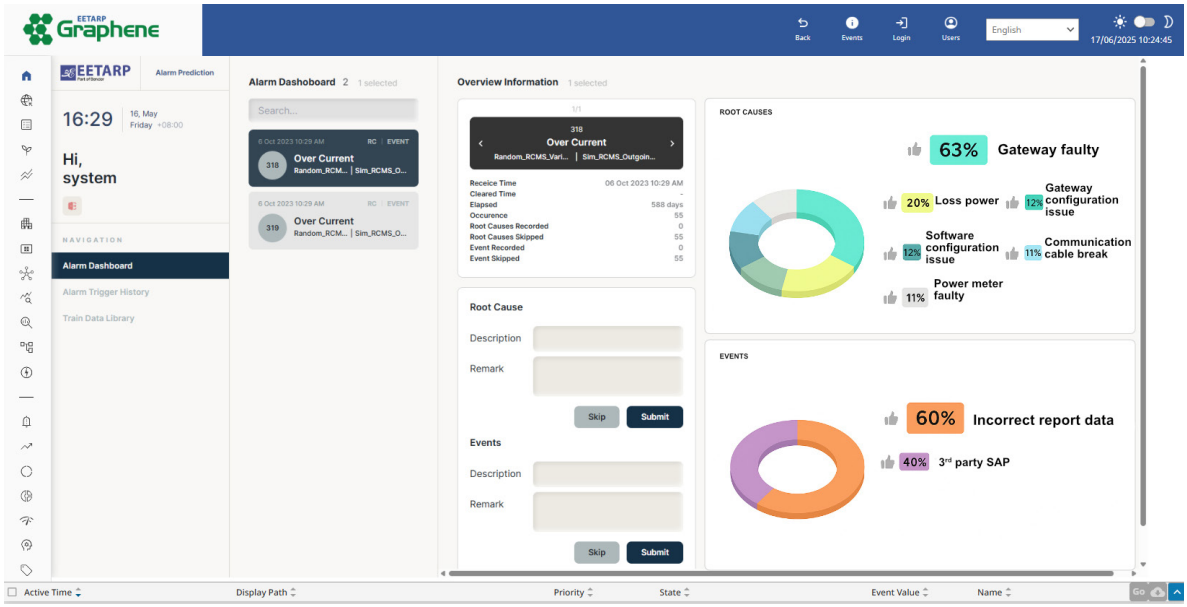
Alarm Notification

Alarm notification allows Eetarp Graphene to automatically send SMS, email, or instant messages to designated recipients or groups whenever an event occurs—minimizing the risk of costly losses from infrastructure downtime. Compatible with popular messaging platforms like Telegram, WeChat, and WhatsApp, it ensures critical alerts reach users promptly and reliably.



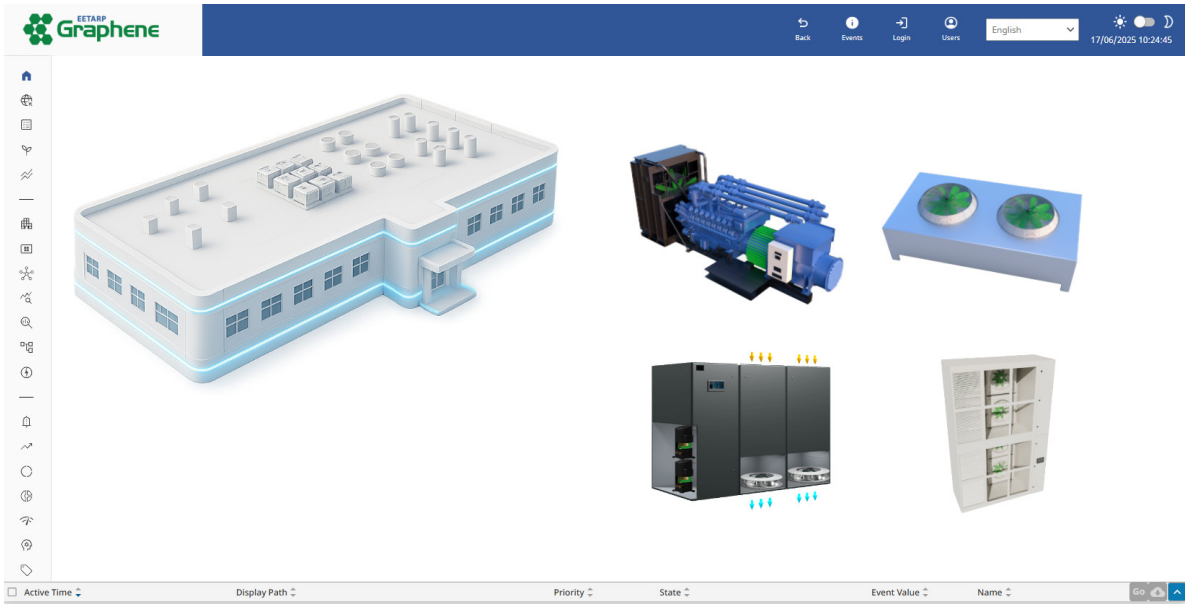
Alarm Root Cause Analysis

Alarm root cause analysis offers intelligent recommendations to identify likely causes of triggered alarms. By presenting first-level diagnostic insights—such as gateway faults, configuration issues, or data errors — it supports faster troubleshooting and empowers facilities teams to respond more effectively, reducing downtime and improving system reliability.



Animated 3D Image

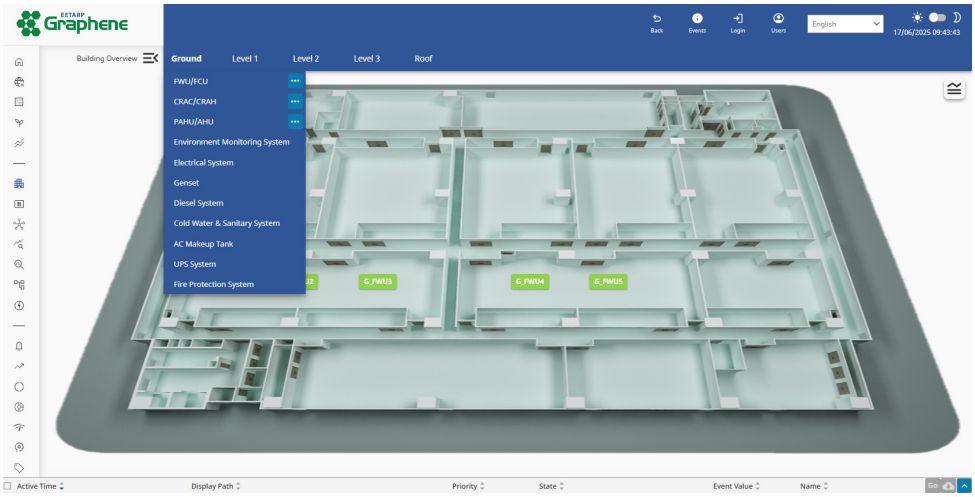
Our 3D images feature animated equipment tailored to your actual models, delivering a realistic and engaging visual experience. Each component can be fully customized to reflect your specifications, while data-linked elements bring real-time functionality into view — enabling interactive insights that align precisely with your operations and monitoring needs.



PART 5
Engineering Module

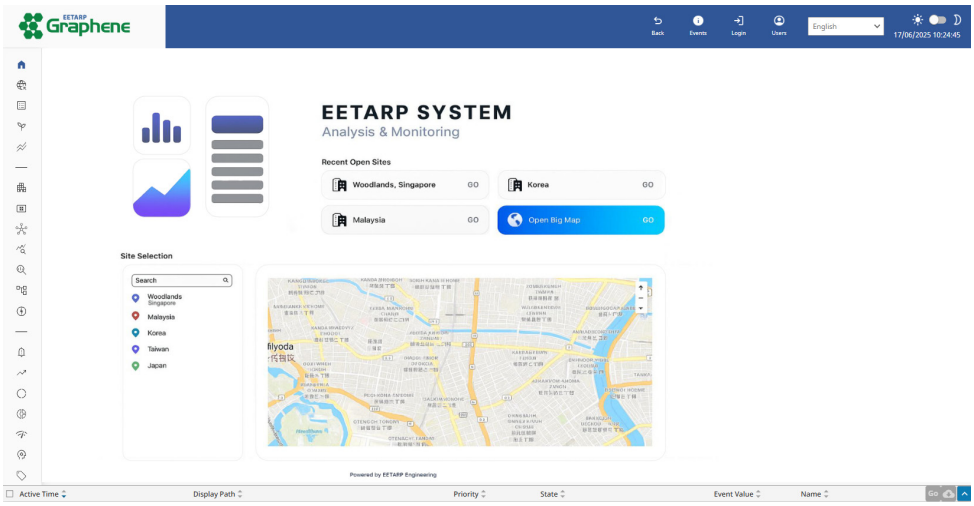
API / Third Party Connectivity

Third party connectivity is made seamless through open protocol support, enabling smooth connectivity with a wide range of external devices and systems. By utilizing protocols such as Modbus, BACnet, OPC, SNMP, MQTT, and REST API, the system ensures flexible integration while meeting Green Mark requirements for open protocol data communication and interoperability.



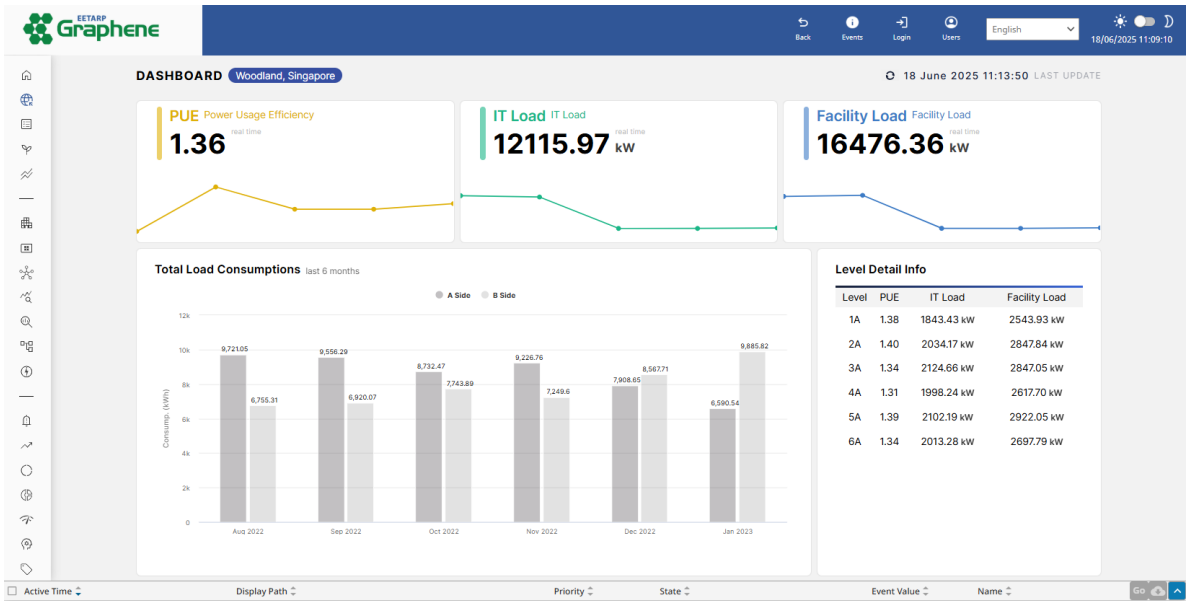
Centralised Monitoring

Centralised monitoring enables real-time visibility across multiple sites through a single integrated system. It streamlines data collection, enhances situational awareness, and simplifies management by consolidating all monitoring points into one platform—making it easier to detect issues, respond quickly, and ensure consistent performance across your entire network of facilities.



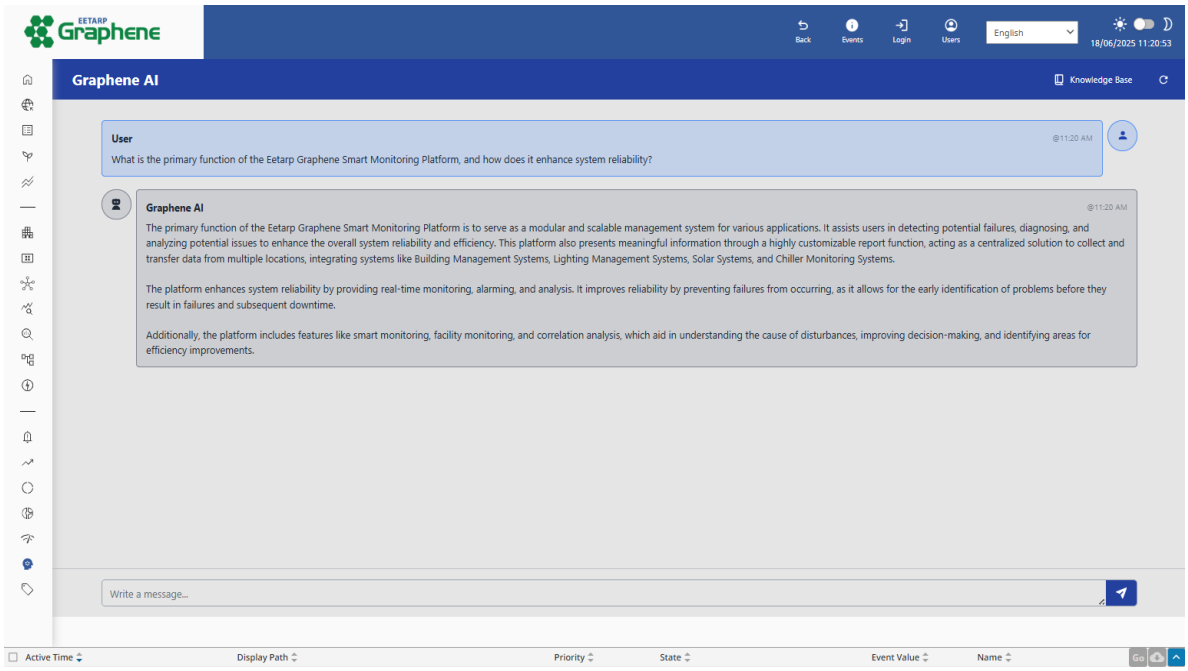
Dashboard

The dashboard offers a real-time, comprehensive view of system performance with bar charts, pie charts, and live trends—delivering quick insights at a glance. Customizable for key metrics like energy and water usage, it supports decision-making and sustainability goals. Preloaded templates help meet BCA Green Mark and SS564 standards while enhancing overall efficiency.



Eetarp Graphene AI

Eetarp Graphene AI includes an AI- powered chatbot that assists users with real-time system queries. Whether it's navigating the platform, retrieving data, or understanding alerts, the chatbox offers quick, user-friendly support — enhancing efficiency and user experience.



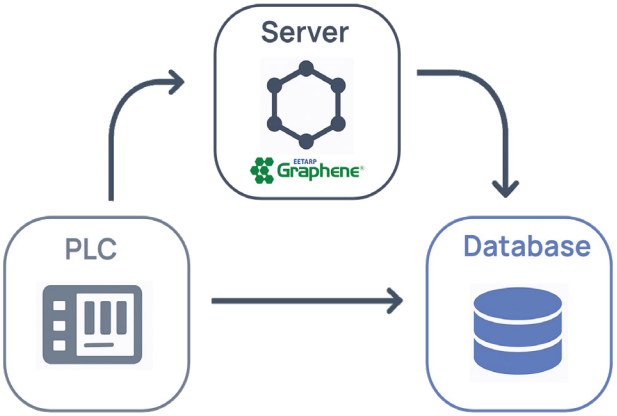
PART 5
Engineering Module

Language Translation

This feature offers auto-translation across multiple languages — including English, Traditional Chinese, Korean, and more — making the system accessible to diverse users. Language settings can also be customized to match individual preferences for a more user-friendly experience.

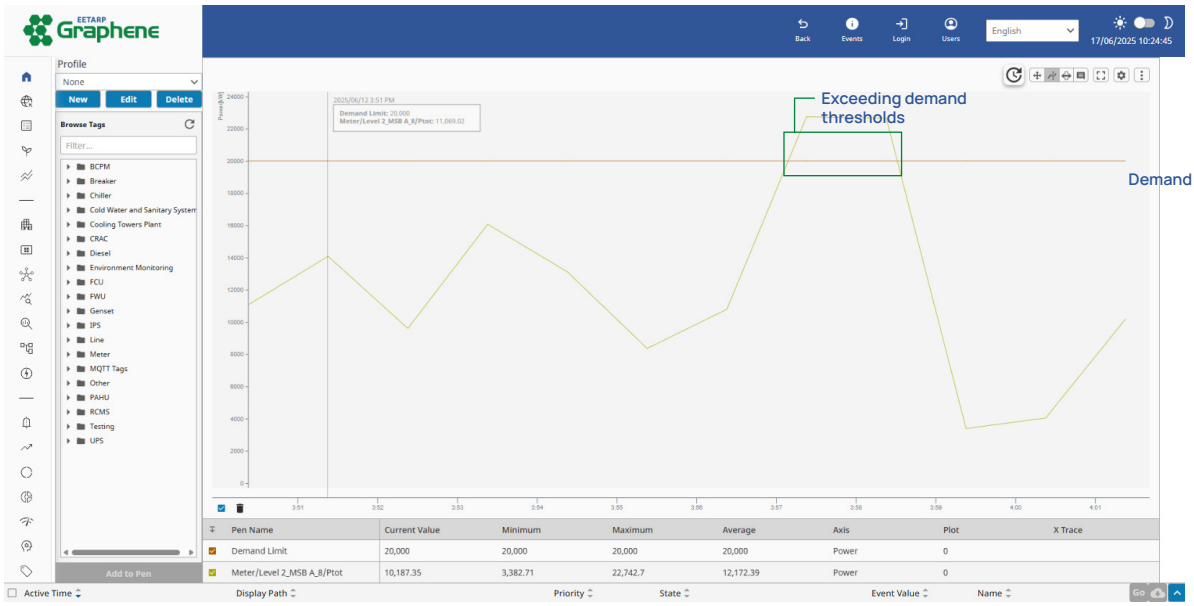
SQL Integration

Eetarp Graphene server acts as the central hub, collecting real-time data from PLCs and seamlessly pushing it into the SQL database. This setup enables structured data storage, efficient queries, and advanced analytics, ensuring smooth communication between operations and backend systems for smarter decision-making.



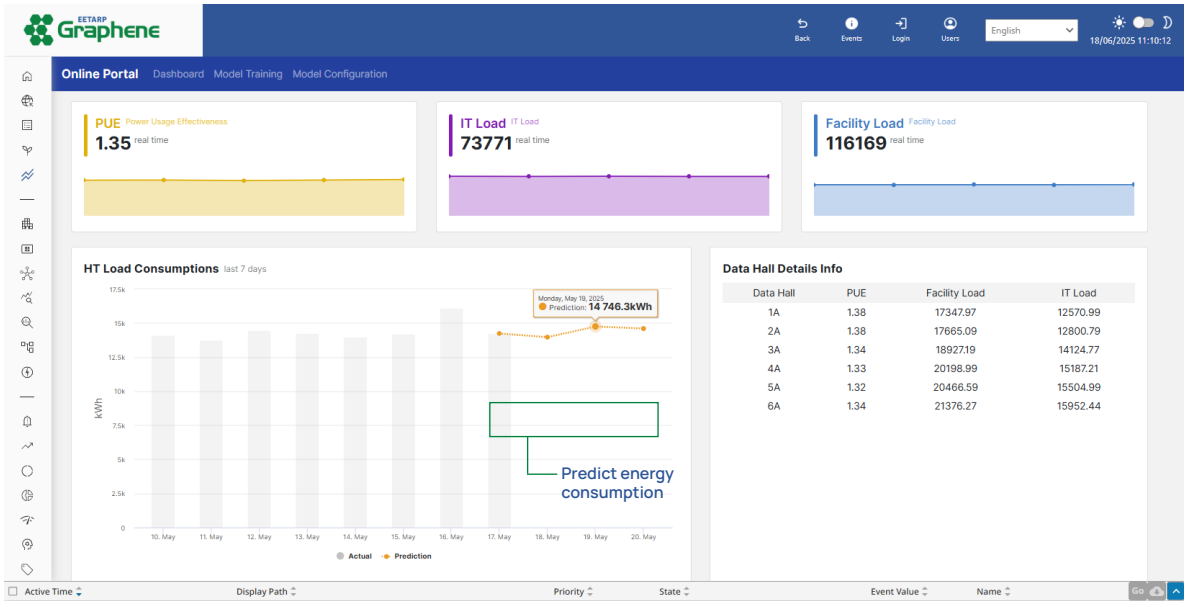
Energy Demand Analysis

Energy demand analysis provides real-time tracking of energy and power usage, offering clear visibility into consumption trends and peak demand. With predictive alerts for potential overages beyond contractual limits, it helps users respond proactively before demand exceeds thresholds — avoiding penalties, supporting load planning, and driving overall energy efficiency across operations.



Energy Forecast Analytics

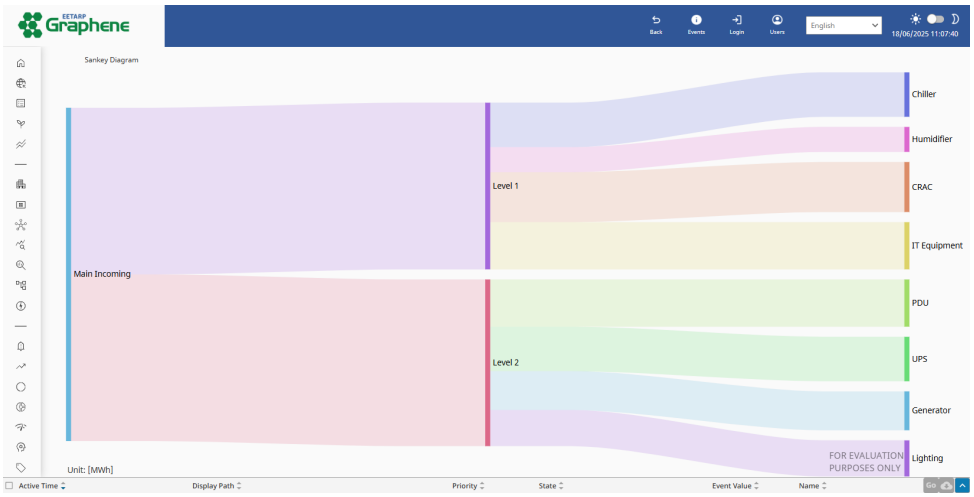
Energy forecast analytics uses intelligent forecasting to predict future energy consumption based on historical usage patterns. By visualizing consumption trends and comparing actual vs predicted values, it helps facilities plan ahead, optimize energy usage, and support more accurate budgeting and sustainability strategies.



PART 5
Engineering Module

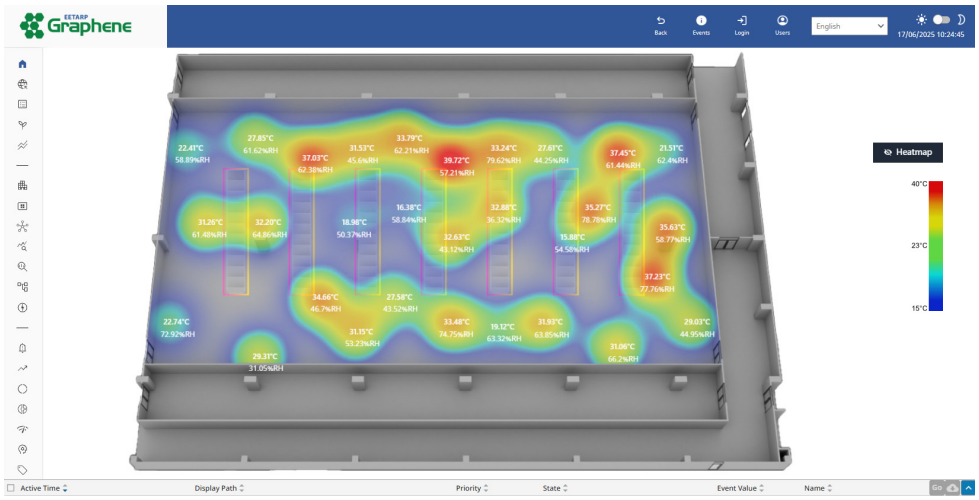
Sankey Diagram

Sankey diagram visually maps the flow of electricity from the source through distribution panels down to end-use units. By clearly displaying energy usage distribution in an intuitive format, it helps users quickly identify load paths, compare consumption levels, and optimize energy management across systems.



Temperature Heatmap

Temperature heatmap provides a visual overview of temperature distribution across monitored spaces using intuitive color gradients. With real-time heatmap display, users can instantly identify hotspots or anomalies, making it easier to maintain optimal environmental conditions and improve thermal management within facilities.

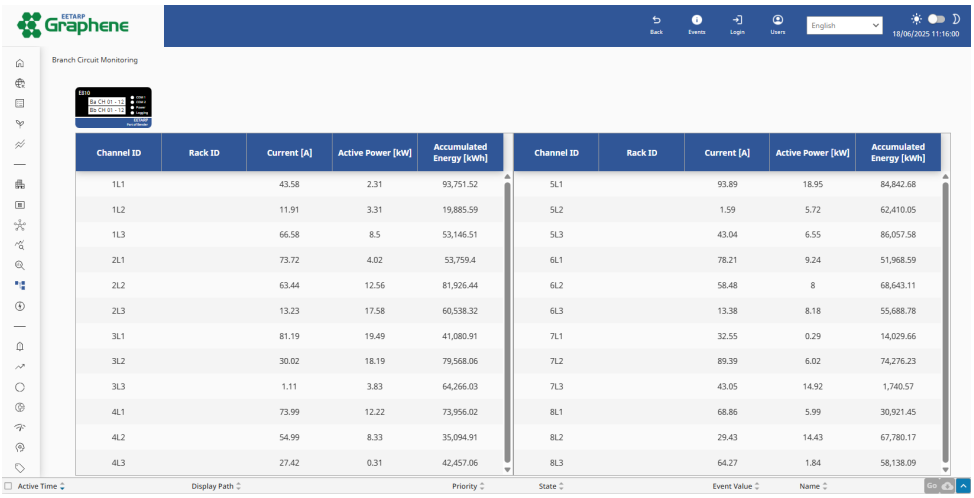


EETARP Graphene

PART 5
Supervisory & Control Module

Branch Circuit Monitoring

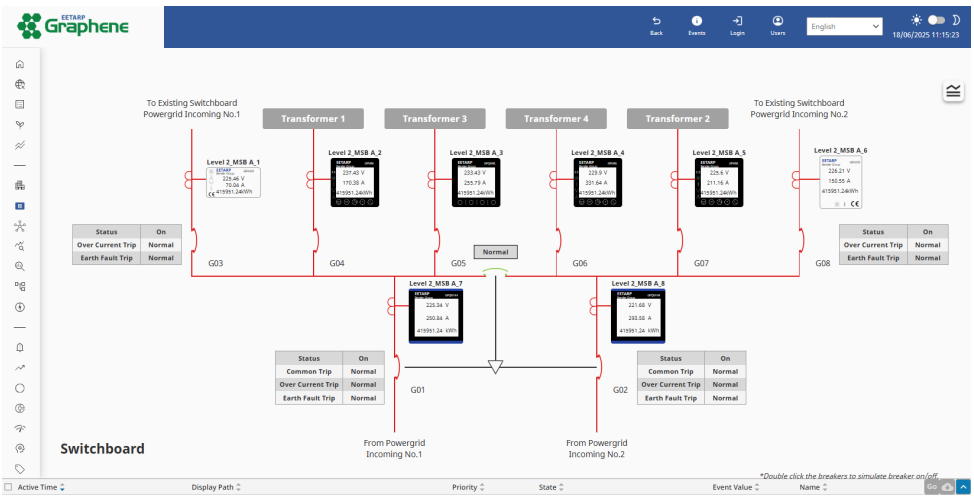
Branch circuit monitoring enables real-time monitoring of multiple circuits in a single panel—ideal for dense electrical setups. With the SmartSense Technology, it intelligently detects branch circuit abnormalities and no-load conditions, enhancing safety and operational efficiency without the need for extra hardware or wiring.



Channel ID	Rack ID	Current [A]	Active Power [kW]	Accumulated Energy [kWh]	Channel ID	Rack ID	Current [A]	Active Power [kW]	Accumulated Energy [kWh]
1L1		43.58	2.31	93,751.52	5L1		93.89	18.95	84,842.68
1L2		11.91	3.31	19,885.59	5L2		1.59	5.72	62,410.05
1L3		66.58	8.5	53,146.51	5L3		43.04	6.55	86,057.58
2L1		73.72	4.02	53,759.4	6L1		78.21	9.24	51,968.59
2L2		63.44	12.56	81,926.44	6L2		58.48	8	68,643.11
2L3		13.23	17.58	60,538.32	6L3		13.38	8.18	55,688.78
3L1		81.19	19.49	41,080.91	7L1		32.55	0.29	14,029.66
3L2		30.02	18.19	79,568.06	7L2		89.39	6.02	74,276.23
3L3		1.11	3.83	64,266.03	7L3		43.05	14.92	1,740.57
4L1		73.99	12.22	73,956.02	8L1		68.86	5.99	30,921.45
4L2		54.99	8.33	35,094.91	8L2		29.43	14.43	67,780.17
4L3		27.42	0.31	42,457.06	8L3		64.27	1.84	58,138.09

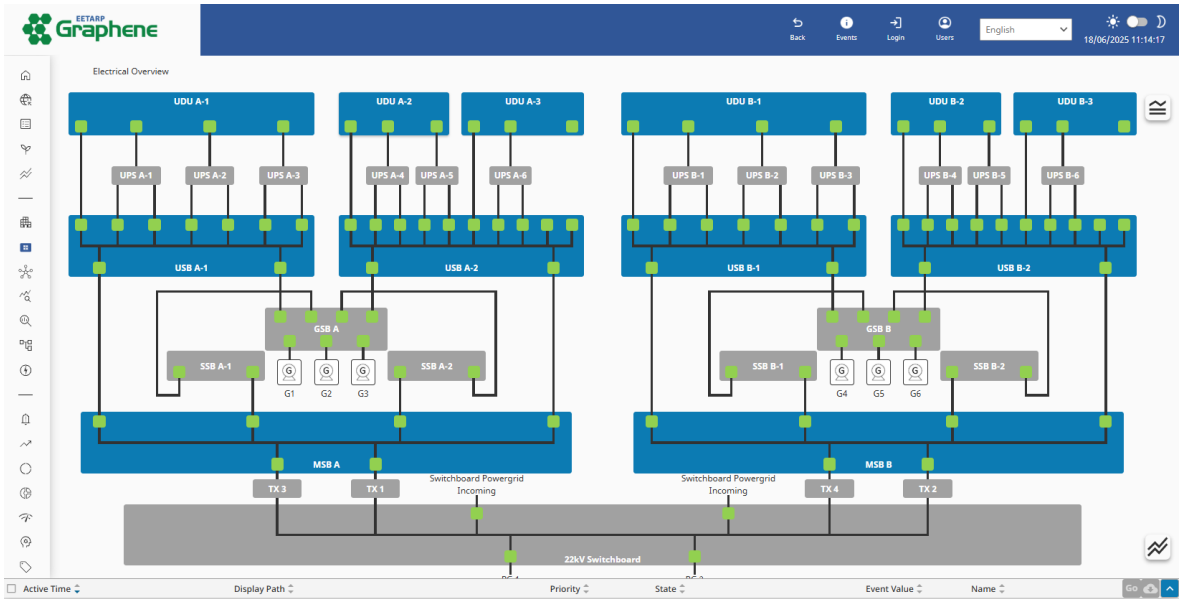
Power Management

Power management and breaker status monitoring involves continuous monitoring of power and energy across the system to ensure efficient and reliable operation. With real-time visibility into voltage, current, and consumption data, users can quickly identify imbalances, optimize load distribution, and improve energy efficiency—supporting both operational uptime and sustainability goals.



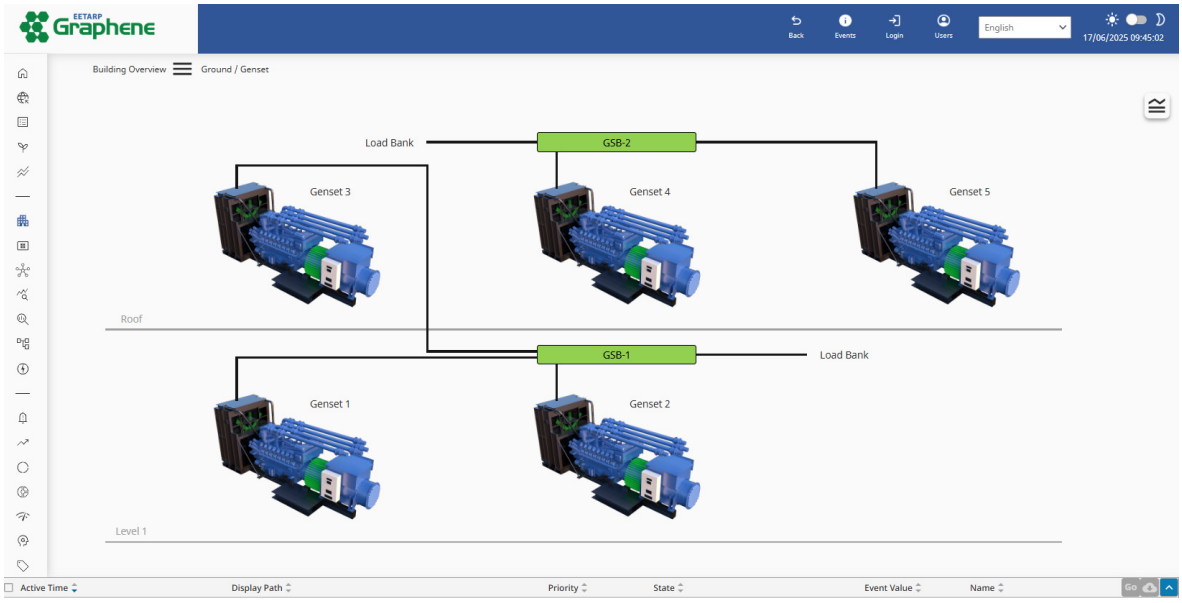
Electrical Overview

This feature offers an at-a-glance view of each location, with real-time resource data to help users assess electrical, mechanical, and environmental conditions.
“World View” provides a full overview of electrical and mechanical systems, including floor plans with easy zoom-in functionality.



Electrical Infrastructure Monitoring

Electrical infrastructure monitoring provides real-time oversight of key systems including UPS, GENSET, transformers, and High Voltage/Low Voltage switchgear. It ensures reliable power delivery, detects faults early, and supports preventive maintenance—safeguarding critical operations by keeping every layer of the electrical network visible, connected, and under control.

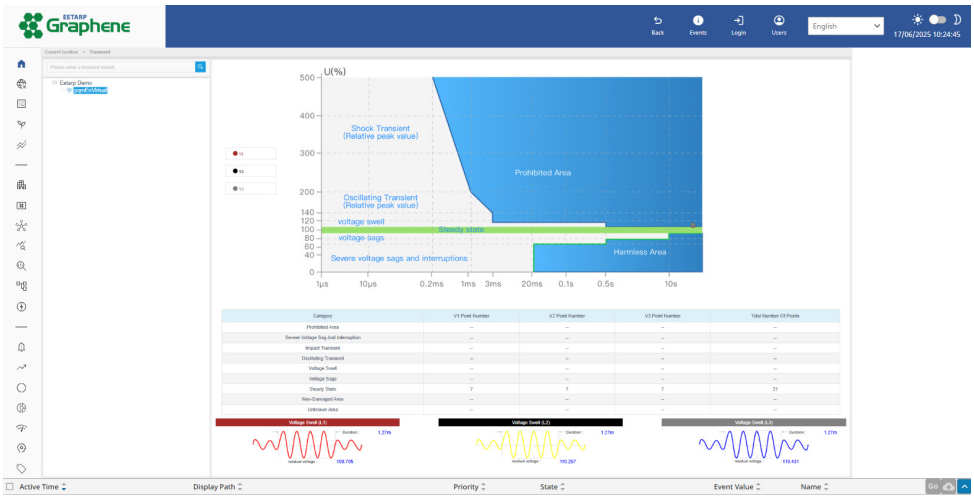


EETARP Graphene

PART 5
Supervisory & Control Module

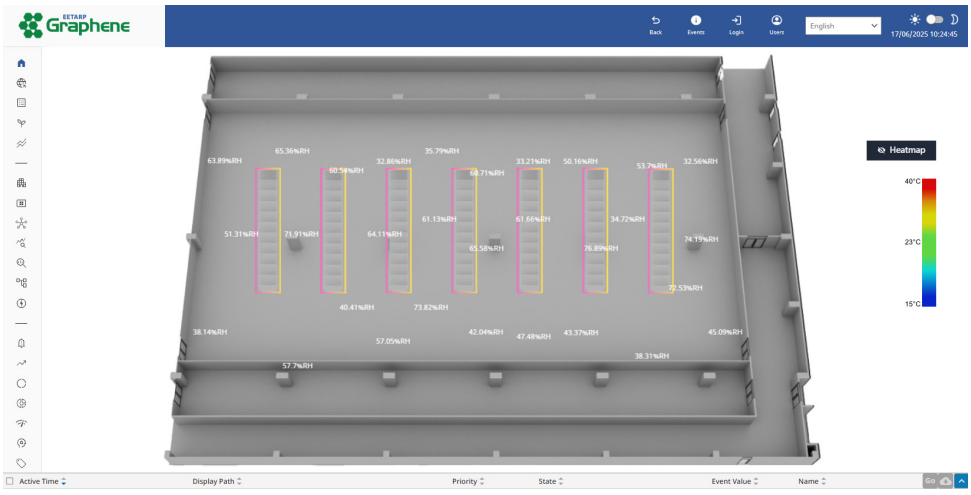
Power Quality Analysis (ITIC/SEMI F47/...)

The power quality analysis (ITIC/SEMI F47/...) module displays voltage and current waveforms, harmonics, phasor diagrams, trends, and energy profiles — helping users identify disturbances and take proactive action to prevent breakdowns.



Environmental Monitoring

Environmental monitoring tracks key conditions such as temperature, humidity, and other environmental factors in real time. This ensures optimal operating environments, helps prevent equipment damage, and supports proactive facility management.

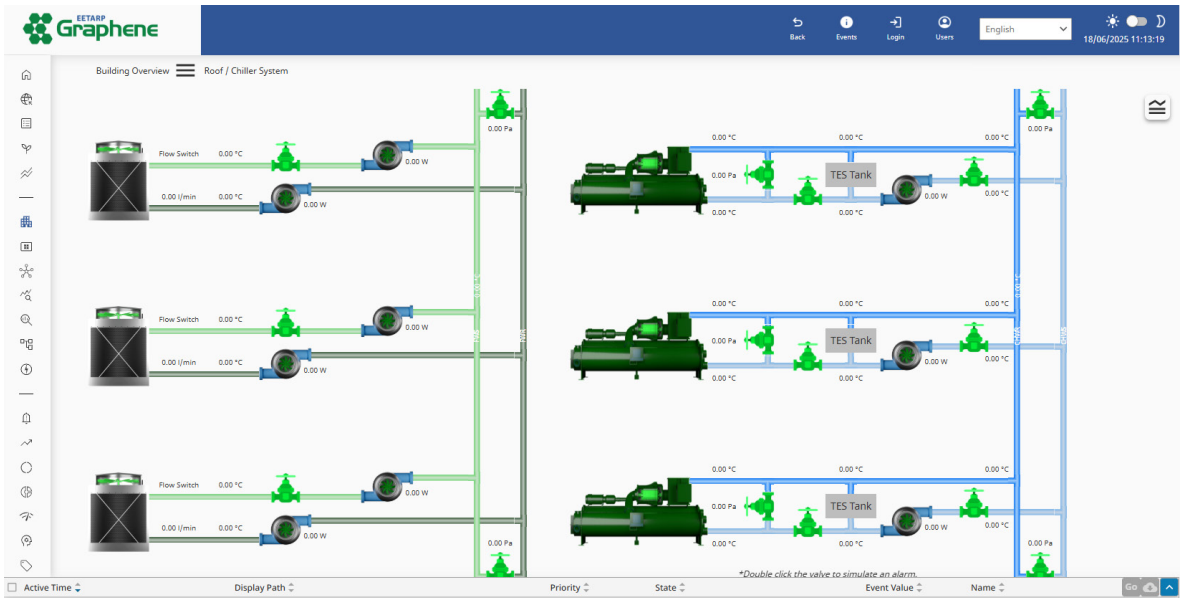


Fire Detection & Suppression

Fire detection & suppression integrates with fire detection systems to enable real-time monitoring and immediate alerts in the event of a fire. The system provides clear visualizations of affected fire zones, allowing for quick response and effective incident management.

HVAC Water Management System

The HVAC Water Management System monitors and controls chilled and condenser water loops to ensure efficient cooling performance. It manages pumps, valves, and heat exchangers while optimizing flow rates and temperatures. This enhances energy efficiency, prevents system strain, and maintains consistent comfort across facilities through intelligent water-side operation and control.

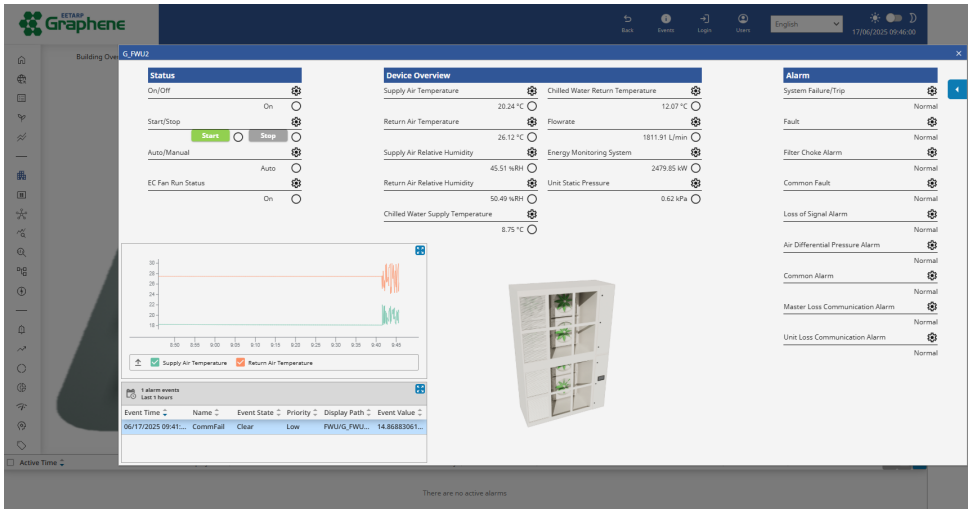


EETARP Graphene

PART 5
Supervisory & Control Module

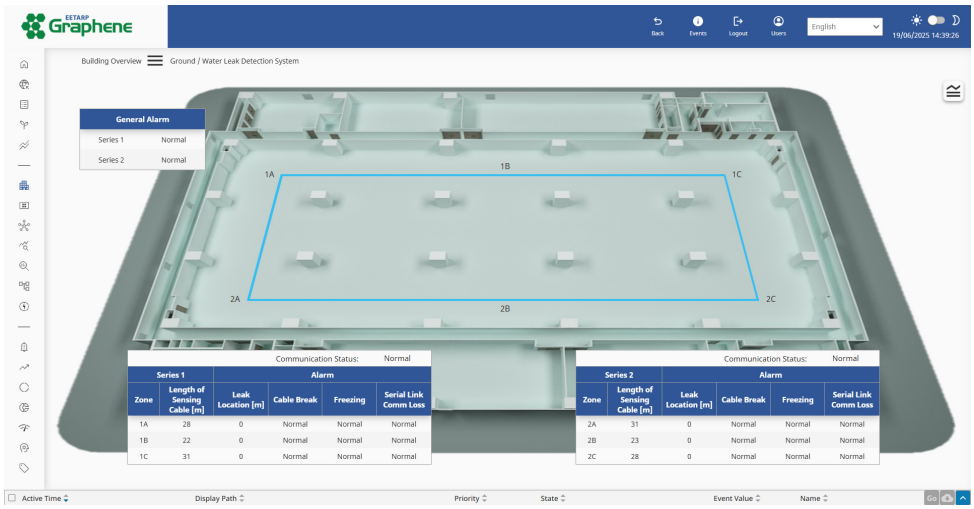
HVAC Air Management System

The HVAC Air Management System regulates airflow, temperature, and air quality across spaces by controlling AHUs, FCUs, dampers, and VAV systems. It ensures optimal ventilation, thermal comfort, and energy efficiency. Real-time monitoring and automation help maintain indoor air quality while adapting to occupancy and environmental conditions seamlessly.



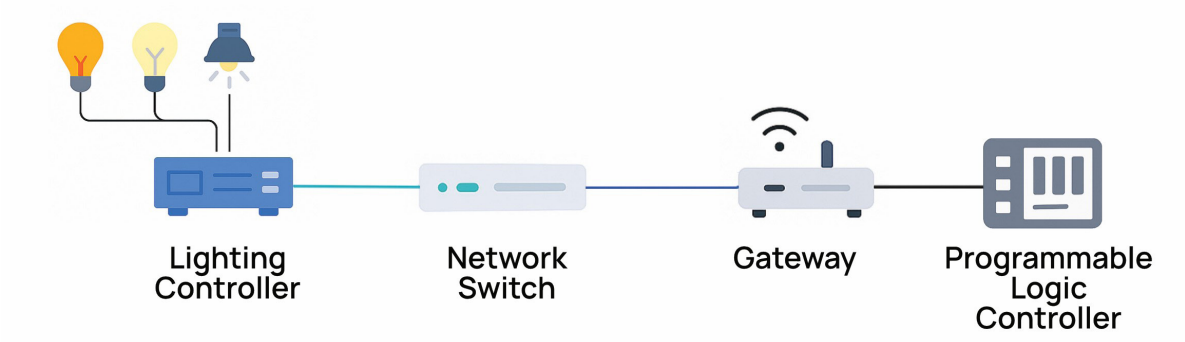
Water Leak Detection System

The Water Leak Detection System provides early warning of leaks in critical areas by monitoring pipelines, equipment rooms, and building infrastructure. Using sensors and real-time alerts, it helps prevent water damage, reduce downtime, and protect assets. Integrated with building systems, it ensures rapid response and enhances overall facility resilience.



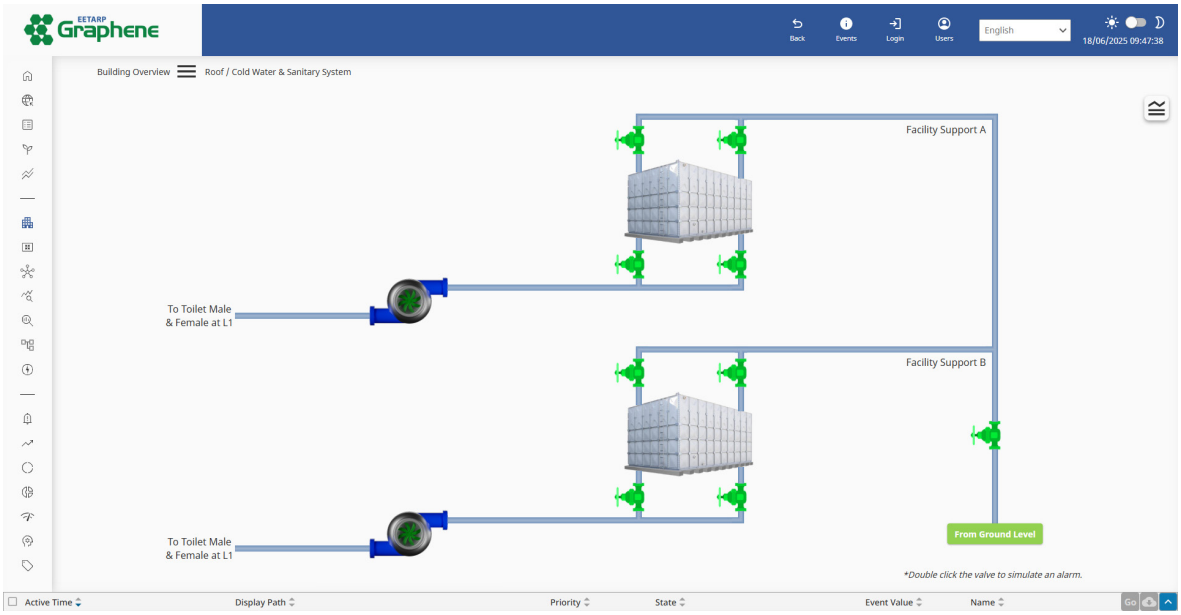
Lighting Control

Lighting Control System enables seamless integration with lighting networks for real-time monitoring and intelligent control. It supports automated scheduling to optimize energy use, enhance operational efficiency, and ensure the right lighting at the right time—reducing manual intervention and supporting smart building goals.



Plumbing & Sanitary Management System

Plumbing & Sanitary Management ensures efficient water distribution and waste discharge throughout a facility. It monitors water usage, pressure levels, pump operation, and drainage systems to maintain hygiene and prevent blockages or leaks. Smart controls and alerts support preventive maintenance, optimize resource use, and ensure reliable, compliant building operations.

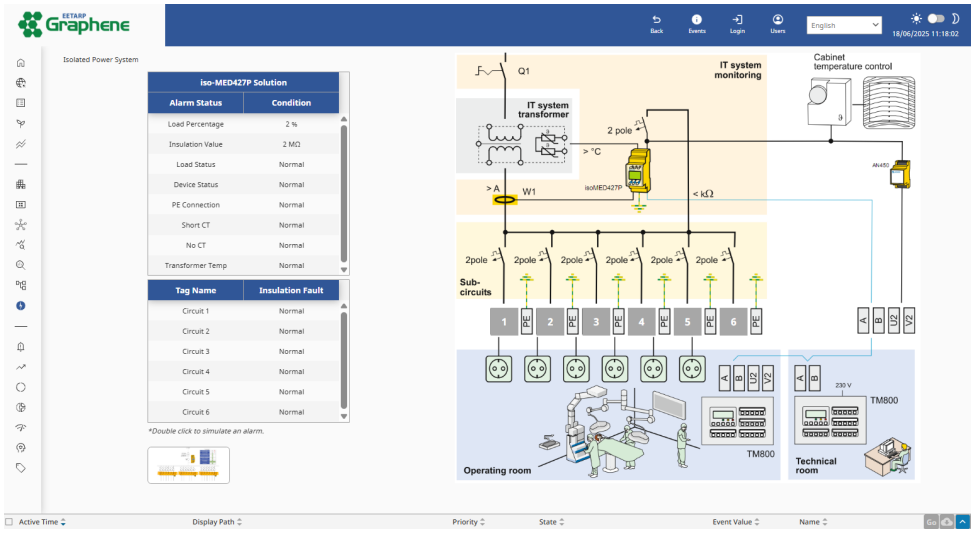


EETARP Graphene

PART 5
Supervisory & Control Module

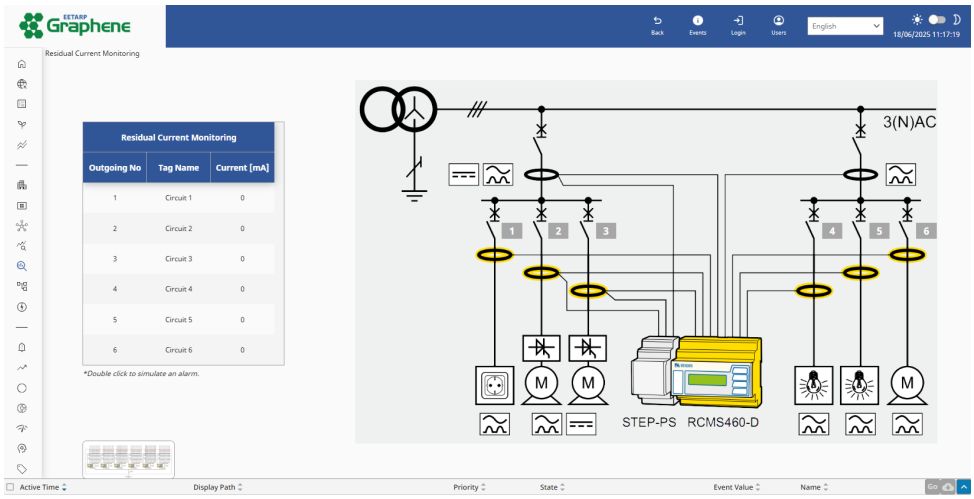
Isolated Power System

Isolated Power Systems (IPS) ensure safe, continuous electrical supply in medical Group 2 areas like operating theatres and ICUs. Compliant with IEC 60364-7-710, IPS prevents disconnection on first fault, protecting patients and staff from electrical risks while supporting critical system reliability and hospital safety standards.



Residual Current Monitoring

Residual Current Monitoring provides continuous surveillance of leakage currents to detect insulation faults early and prevent electrical hazards. Leveraging advanced solutions like Bender's residual current monitoring technology, it enhances safety, supports preventive maintenance, and helps maintain compliance with electrical safety standards.



EETARP Graphene

PART 6
Why customers choose us?

Over the years, Eetarp has built a strong reputation as a trusted partner in the field of power monitoring and energy management. With extensive experience working on diverse projects across various industries, we have consistently delivered high-quality solutions tailored to our clients' unique needs.

Our customers rely on us not only for our cutting-edge technology and precise energy measurement solutions but also for the exceptional service and support we provide at every stage—from consultation and implementation to ongoing maintenance. Our dedication to technical excellence, reliability, and customer satisfaction has earned us long-standing partnerships and industry recognition. Below are what our customers have to say about their experience with us.

> "Eetarp has consistently provided reliable system monitoring our facility's systems. We appreciate the range of features offered, and they work as expected. Your support team has been quick to respond and resolve issues. They are knowledgeable and provide clear instructions. Overall, we are satisfied with your solutions"

Customer Feedback, Hospital Operator

> Extremely good product range, and excellent service from sales and technical staff. Products are of good quality, build and availability, and at a very good price point as well

Customer Feedback, Switchboard Maker

> Partnering with Eetarp has significantly improved our facility operations. Their solution enabled fully automated control with better energy efficiency, helping us save nearly S$1 million in power and water over a year. Through Eetarp Graphene System's DLP, we also reduced BMS maintenance costs and enhanced monitoring — making audit readiness and compliance much easier to achieve

Customer Feedback, DataCenter Operator

> Having built such systems with Eetarp in previous projects, their system's reporting and full alignment with SS564 really stood up to the real situations during operation

Customer Feedback, DataCenter Operator

EETARP Graphene

PART 7
Regional Support

We offer a wide array of **services and trainings** to our clients.

Voltage Dip
Voltage dip simulation test according to SEMI F-47 test

PQ Monitoring
Onsite power quality and inrush current measurement

Troubleshooting
Root cause analysis and mitigation solution

Earth Fault Detection
Online earth fault detection and location

Maintenance
Comprehensive & non comprehensive maintenance

Safety Test
Electrical safety test in accordance to IEC60601-1/IEC62353/DIN VDE 0751

Power Compensation
Reactive power compensation and harmony filter

Power Quality Training
Power quality problems and the mitigation solution

Testing and Commissioning
Verify system functionality, safety, and compliance before full operational use

Electrical Safety
Theory, design & protection of IT (Underground System) and TN/TT (Grounded System)

Supported Countries

- Australia
- China
- India
- Indonesia
- Japan
- Philippines
- South Korea
- Taiwan
- Thailand
- Vietnam

Eetarp Engineering Pte Ltd

1 North Coast Avenue, #03-01
Singapore 737663
Tel: +65 6339 3651
Fax: + 65 6339 3667
Email: contact @eetarp.com
Website: www.eetarp.com
CRN: 200001617K

Eetarp Power (M) Sdn Bhd

A-5-11, Blk Allamanda 10 Boulevard, Lebuhraya
Sprint PJU 6A 47400,
PJ, Selangor, Malaysia
Tel: +603 7729 3973
Fax: +603 7729 8973
Email: contact@eetarp.com
CRN: 1205228P

Supported Countries
Australia, China, India, Indonesia, Japan, Philippines, South Korea, Taiwan, Thailand, Vietnam