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Zaphire EMS - Featurelist

Zaphire is an advanced, cloud-based Energy Management System (EMS) that monitors, analyzes, and optimizes energy consumption across facilities and infrastructure.

Zaphire's History

Zaphire is a Norwegian company based in Drammen. Since 2018, we have developed modern systems for building automation and energy monitoring, focusing on user-friendliness, security, and reliability.

Zaphire is driven by the ambition to create a first-class system built on modern IT principles and open standards. Before we began developing Zaphire, we saw that processes in traditional building and energy management systems were inefficient and complex. Existing solutions appeared outdated, difficult to use, and lacked the efficiency required to meet modern needs. In 2018, we decided to address these challenges and began developing a system for building and energy automation. The result became Zaphire.

Today, Zaphire is an established player in the market, with solutions used by both municipalities and large property managers. With Zaphire, you get a complete solution for building management, monitoring, and energy supervision, featuring high operational reliability, full mobile access, and lower lifecycle costs than traditional systems.

Zaphire Energy Management System

Zaphire EMS is a user-friendly, cloud-based energy management system designed to monitor, analyze, and optimize energy consumption in buildings - regardless of size or complexity. The system gives managers and operational personnel access to a comprehensive overview of energy data, enabling faster and more accurate decision-making with a clear focus on both operations and sustainability.

The system collects data from all technical installations, such as heating, ventilation, cooling, lighting etc., and presents them in a clear and modern interface. Through dynamic graphs and dashboards, you can view and compare energy consumption hour by hour, quickly identifying deviations, leaks, or inefficient operation. Zaphire EMS transforms raw data into meaningful analyses that give you deep insight into consumption patterns and trends. You can easily compare buildings, set energy usage targets, and document the effect of measures over time.

Zaphire EMS is built on open standards such as Websockets and REST API, enabling seamless integration with existing BMS systems and third-party solutions. This allows you to collect and analyze energy data from different suppliers and technologies in a single platform, without replacing existing equipment.

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Data Collection and Measurement

Effective energy management begins with reliable data collection. Zaphire gathers and structures measurement data from multiple sources, enabling precise analysis of energy consumption across buildings, zones, and facilities. The system supports direct measurements, external data sources, and virtual calculations, ensuring that all data is presented in a unified and easy-to-understand format.

1

APIs and Third-Party Integrations

Seamless integration with external data sources

Zaphire integrates easily with SCADA systems, IoT platforms, and external sensor networks through open REST APIs and webhooks. The system also supports direct data streams from third-party providers such as district heating, solar power plants and weather services, as well as Elhub integration without the need for local installation.

2

Support for Multiple Energy Types

One platform for all energy carriers

The platform handles electricity, gas, heat, water, district heating and other energy forms within a single system.
In addition, non-energy meters such as temperature and production data can be used for ET-curves and other analyses, providing deeper insights across technical disciplines.

3

Historical Data Storage

Unlimited history

All energy data is stored in a modern time-series database with extremely high capacity, allowing long time series to be analyzed without loss of resolution. Historical values from the BMS are available immediately, and data is stored securely in the cloud with high uptime and automatic backup.

4

Meter Data Processing

Automated validation and structuring

Zaphire collects, validates, and structures measurement data from many sources, including BMS systems, Elhub, API integrations and manual registration. Virtual and grouped meters make it possible to automatically calculate totals, differences and allocations.

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Analysis and Reporting

Zaphire provides full insight into energy consumption and operational status through advanced analytics, intuitive visualizations, and automated alert mechanisms. The system combines historical data and intelligent models to help users identify anomalies, inefficient operation, and potential energy savings. The result is better control, faster decision-making, and increased energy efficiency across buildings and facilities.

Dashboard with Key Metrics

Clear, customizable dashboards

Zaphire presents consumption, CO_2 emissions, and other key indicators in clear dashboards that update automatically. The dashboards can be customized by the user and generated either manually or automatically based on the meter structure in the area.

Alerts for Deviations

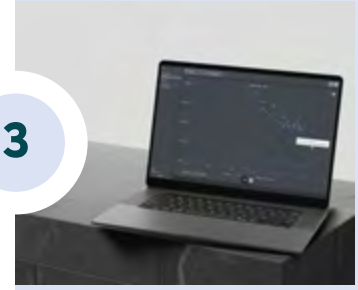
Automatic notifications for faults and abnormal operation

The system alerts users about unusual consumption patterns, deviations from expected energy use, or other operational issues. Alerts can be sent as push notifications or emails and are based on analyses of historical data, temperature, and meter readings. This enables rapid response and reduces unnecessary energy use.

Load Profile Visualization

Graphical insight into energy use and load

Zaphire visualizes energy consumption through consumption curves, load curves, and ET curves that show the relationships between temperature, load, and operational patterns. Load peaks and inefficient periods become visible, and the graphs make it easy to understand how energy is actually used over time.



Data Visualization

Interactive graphs for deeper analysis

The system presents energy data in interactive graphs and dashboards where the user can zoom, filter, and compare values across meters and time periods. These visualization tools make complex datasets easy to interpret and provide quick insight into consumption, costs, and emissions.

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Energy Performance Calculation

Insight into how efficiently the building uses energy

Zaphire calculates energy performance based on area, production volume, or other key indicators. ET-curves provide insight into how the building responds to outdoor temperature and make it easy to identify periods of abnormal energy use.

5

Benchmarking Between Buildings and Zones

Comparisons that highlight best practices

Using categories, grouped meters, and flexible visualizations, users can easily compare energy performance across different buildings, zones, or technical systems.

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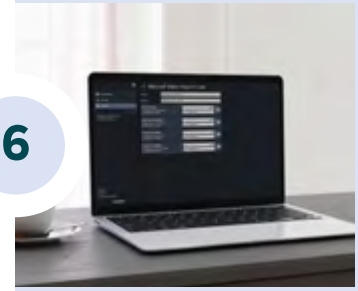

Weather-Normalized Reporting

Comparison across seasons

The ET-curve makes it possible to analyze energy consumption in relation to outdoor temperature, allowing consumption to be normalized against weather conditions. This results in more accurate trends and more realistic comparisons between years and seasons.

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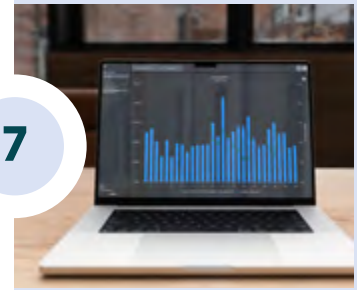

Consumption Estimation

Forward-looking decision support

Zaphire enables predictive analysis based on historical curves, consumption patterns, and temperature correlations. This makes it possible to estimate future energy usage and provides a stronger foundation for planning, budgeting, and risk management.

8

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Access Control

Zaphire uses role- and group-based access management that provides full oversight of who has access to which buildings, data, and functions. Each user only sees what is relevant to them, and access can be restricted all the way down to room and component level. The system follows the principle of “least privilege,” minimizing the risk of unauthorized access.

Encrypted Communication

All information exchanged between users, facilities, and the cloud platform is encrypted with TLS 1.2 and 1.3, and all APIs require secure, encrypted connections. This prevents both eavesdropping, tampering, and unauthorized traffic within the network, and applies modern zero-trust principles at every layer.

Simple and Secure Login

The system supports Single Sign-On via Azure AD and other OIDC solutions, and administrators can enable two-factor authentication for additional protection. Passwords are never stored in plain text—they are saved as salted hash values—and failed login attempts are handled with automatic locking and notifications. This provides high security without compromising user-friendliness.

Traceability and Audit Logging

All actions in the system are automatically logged, so you can always see who did what, when, and where. This ensures full traceability, simplifies troubleshooting, and meets requirements for internal control and auditing. The event log also makes it possible to reverse unwanted changes when necessary.

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Reconcile Collected Data

Accurate data is essential for making good decisions about energy use. Even small deviations in meter readings can have a major impact on reports, ET-curves, and analyses. That is why reconciling collected data is a critical part of a modern Energy Management System.

Why Reconcile Data?

Reconciliation ensures that collected values match actual consumption. This is important because:

- **Ensures the quality of energy reports** – Correct meters, correct periods, and correct aggregations provide reliable consumption curves, ET analyses, and load peaks.
- **Detects errors early** – Sources of error may include missing measurements, illogical jumps in the data, and varying resolutions or quality levels from data sources (e.g., Elhub, the BMS, or APIs).
- **Provides confidence in management decisions** – When the data matches reality, the organization can trust that efficiency measures, optimized operations, and investment analyses are based on a sound factual basis.

How Reconciliation Works in Practice with Zaphire

Automatic Data Collection from Multiple Sources

The system continuously retrieves data from sensors via BACnet, Modbus, and similar protocols through the Zaphire BMS, as well as from third-party BMS platforms, Elhub, and other external APIs.

Data normalisation

Zaphire EMS normalizes data to ensure that all reports are based on a consistent and reliable dataset, without altering the underlying raw data.

Visualizations That Reveal Deviations

Consumption curves, ET-curves, and load curves make deviations clearly visible by showing energy use in relation to temperature and operating patterns over time. Errors or unusual trends are quickly identified.

Meter Comparison

By comparing main meters, sub-meters, and virtual meters, the system can reveal whether meter readings match, or whether hidden consumption or configuration errors are present.

Automatic and Manual Correction Options

When errors are detected, meter definitions, area values, and missing data can be corrected easily. The system supports both automatic adjustments and manual entries where the dataset needs to be supplemented.

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Want to know more?
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