

SIEMENS



ELECTRIFICATION & AUTOMATION

# Smart E-House solutions – IoT enabled

[siemens.com/e-house](https://www.siemens.com/e-house)

# Contents

<b>Smart E-House solutions – IoT enabled</b>	<b>3</b>
<b>Electrification X</b>	<b>6</b>
<b>SIMARIS control</b>	<b>9</b>
<b>Function Overview</b>	<b>12</b>

## APPLICATION OVERVIEW

# Smart E-House solutions – IoT enabled

You probably know someone with a smart home system, or maybe you have one yourself. These systems are incredibly versatile. You can use them to measure and adjust the temperature in your home or even create custom rules. For example, you could set it to unlock all doors when the smoke detector detects smoke, or to automatically turn on lights and music when you come home.

Why not make your E-House Smart? Okay, you might not play music in the E-House. But the smoke detector can, for example, not only activate the fire alarm and extinguishing system but also inform you. Or you might want to know the health status of your E-House. Or perhaps the following questions from our other customers:



## Operations/ Maintenance Manager

Imagine there has been an incident at your plant, and you need to quickly get an overview and provide data to your experts. However, the Control Center is unreachable due to the incident.

**Is there an alternative?**



## Asset Manager

What is the condition of my switchgear? What loads is my distribution exposed to? Are the conditions in my E-House optimal?

**Is there a solution for this?**



## Sustainability Manager

How can I optimize the energy consumption of my systems and reduce carbon footprint? How can I benchmark energy consumption across different locations?

**Is there any support available?**



Figure 1. Combining the real and digital worlds for electrification and automation

For these and other questions, SIEMENS E-House Business recommends you with our IoT products for switchgears and power distribution,

### **Electrification X, and SIMARIS control.**

Our state-of-the-art solution based on Electrification X, a cloud-based application and SIMARIS control, an on-premise application, are designed to integrate seamlessly into your systems, providing comprehensive monitoring, control, and analysis to enhance the efficiency and reliability of your power distribution assets.

Our IoT solutions integrate smoothly with our

### **SICAM 8**

series automation products, ensuring improved performance and a unified automation experience tailored to your needs.

Additionally, the monitoring of the E-House building systems can be managed using IoT products for buildings, such as Building X or DESIGO CC. DESIGO CC can also be connected through SIMARIS control.

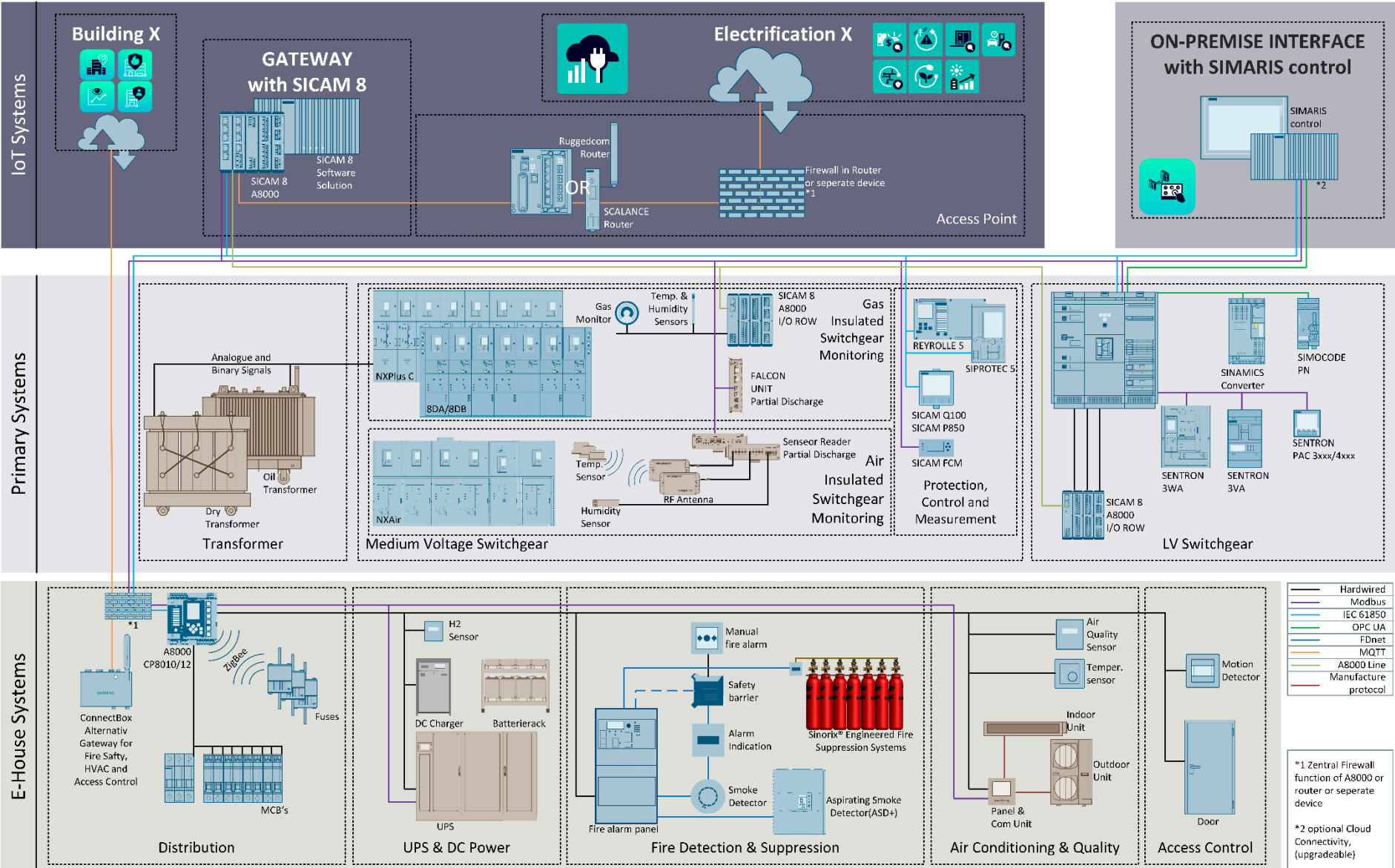
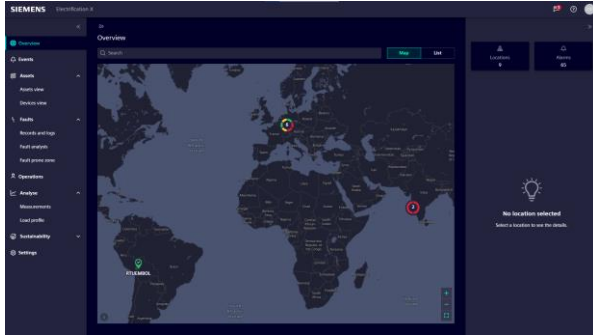


Figure 2. Example of a typical E-House communication scheme

APPLICATION OVERVIEW

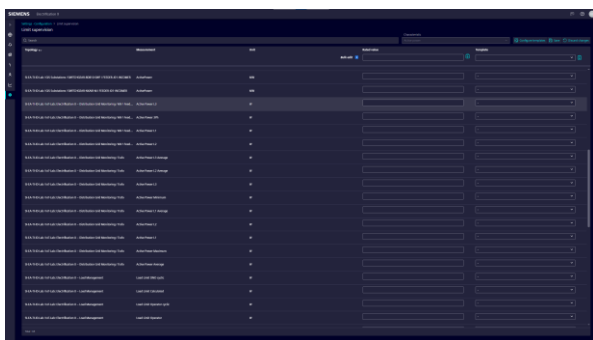
# Electrification X



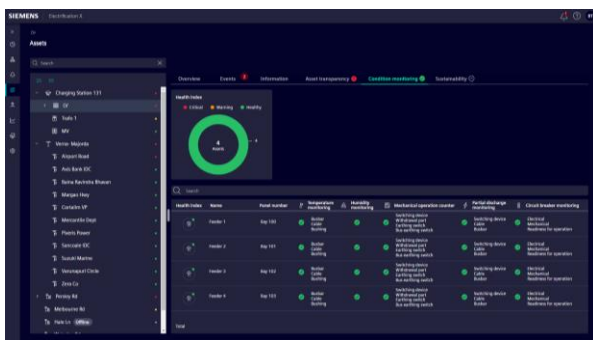
Regardless of your local control centers, you can access all your E-Houses and projects from a single system using **Map View**. The group view provides a quick overview of the status of all E-Houses.



As known from the Control Center, both **Event and Alarm Lists** are available. However, only alarms are displayed in the central event list, with each detected alarm shown on a separate line. This window serves as your main starting point for handling alarms. If you navigate to the assets of your E-House, events and alarms are displayed in two different lists.



With the **Limit Supervision**, system components from the E-House can be centrally set and monitored in Electrification X. In addition to primary system parameters like current and voltage, ambient measurements such as temperature, humidity, and air quality can also be tracked. This continuous monitoring of limit values enhances the service life of devices and plant components, extends maintenance intervals, and reduces downtime.

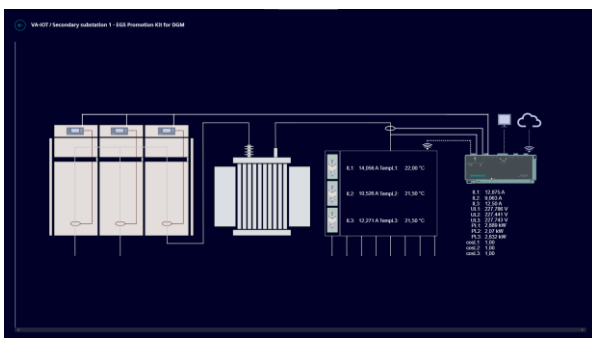


Electrification X - Asset Management enables the visualization and **continuous monitoring** of electrical switchgear and primary components, such as transformers, in E-House systems and projects. Condition monitoring of the **temperature, humidity, partial discharge** and **circuit breaker** allows you to get an online health status of your connected assets remotely. We recommend equipping at least critical components, such as incomers, essential motor branches, or power transformers.

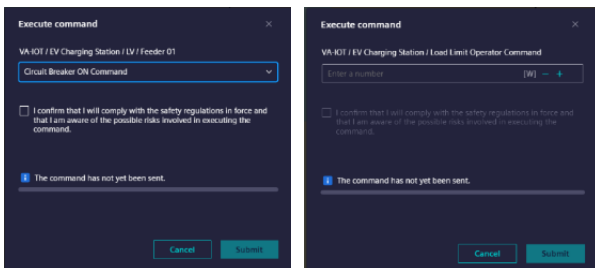
This helps you to manage risks better, avoid unplanned shutdowns and improve maintenance schedules based on continuous monitoring, instant alarms, early warning of upcoming needs for actions.



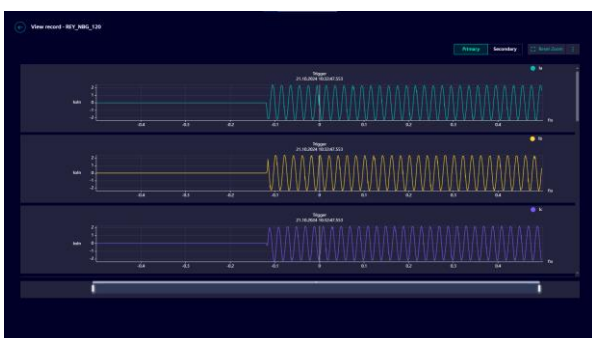
If a critical asset, such as a transformer or motor in the medium voltage (MV) network, fails, it can lead to significant costs. To prevent such failures, various monitoring and analytics systems are employed. However, why aren't the MV switchgear integrated into these systems? Despite being maintenance-free, our MV switchgear can still be affected by external factors. Therefore, we recommend equipping at least the most crucial branches with our suggested **monitoring and analytics systems** to detect higher loads or potential damage early on.



In addition to the switchgear and primary components, your E-House contains many other critical system components essential for its operation. This includes the E-House supply, which is vital for maintaining functionality. For effective monitoring, we recommend our SICAM 8 automation system, which is also suitable for small **distribution systems**. The SICAM 8 hardware excels at monitoring larger branches with fuses, using secure radio transmission for backup status monitoring. Additionally, it supports the integration of other systems such as **HVAC, UPS, and access control**, which can be transmitted to **Electrification X**.



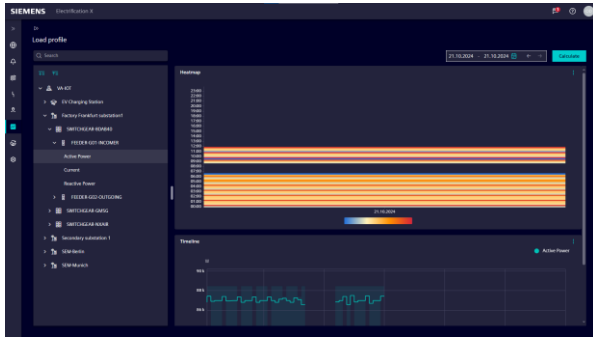
Remote switching of systems is a sensitive topic, requiring strict attention to personal and plant safety. However, there are numerous situations where **Asset Control** are essential. For instance, you might need to manually trigger a recording, acknowledge an alarm from the distribution, or adjust the Set Points of measuring devices, if supported by the device. This capability allows you to not only monitor your E-House from **Electrification X** but also manage it, regardless of the process.



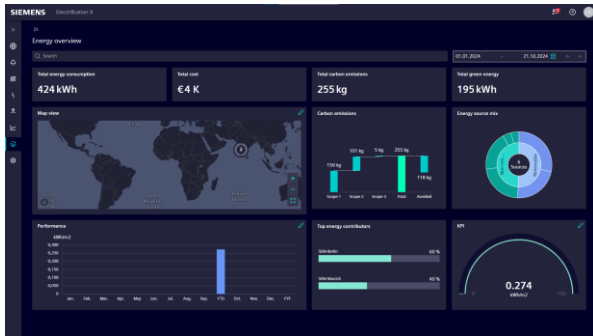
In the event of a fault in the switchgear, quick action is required to minimize system downtime. Since error **logs and records** are usually stored on the station protection relays or computers, collecting them can be time-consuming.

When analyzing Power Quality, access to these records must be guaranteed, or they must be transferred at great expense.

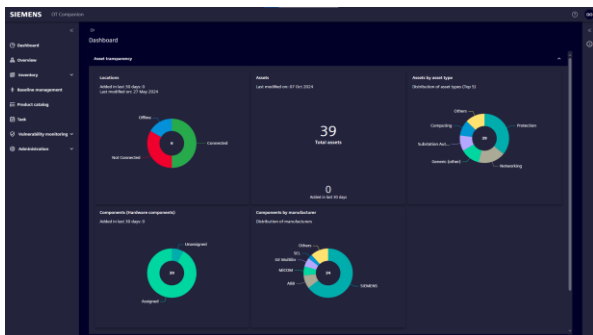
Why not store everything centrally? With **Electrification X**, you can view and download this information centrally, quickly, and clearly from anywhere.



Monitoring the **load profile** of specific plant parts or branches is crucial for system optimization, obtaining reliable data for new project tenders, or identifying temporarily problematic branches. **Electrification X** provides a straightforward solution for your **E-House**, enabling quick implementation of monitoring, even retrospectively. If system values are available, monitoring can be activated as needed until the desired time.



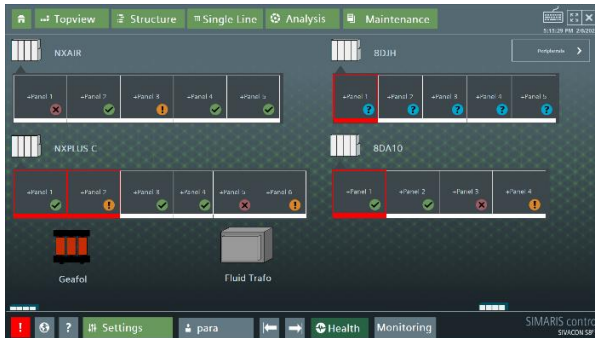
The **energy overview** allows energy performance overview of all locations. The global energy performance dashboard is design to reflect cumulative results for **energy, cost, carbon emissions** and green electricity contribution. The geographical location view illustrates **energy KPI performance** marked with color coding. This helps to quickly visualize under-performing sites. In addition to EnPIs, **all scope emissions** are displayed along with source mix information.



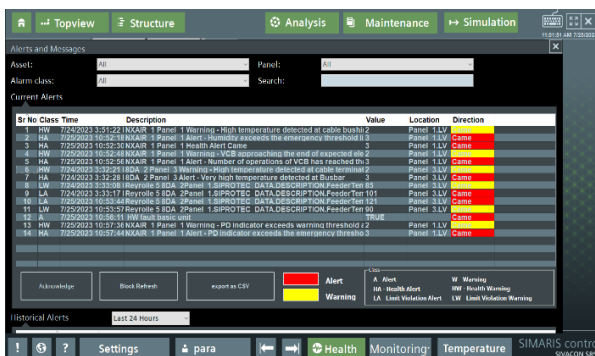
In an era of increasing hacker attacks, ensuring data and plant security through robust cyber protection is crucial. **Electrification X - OT Companion** offers real-time vulnerability scanning and end-of-life notifications for all components, including Siemens and most third-party hardware and software. This solution streamlines compliance with cyber regulatory standards and reduces the time and cost associated with patching

APPLICATION OVERVIEW

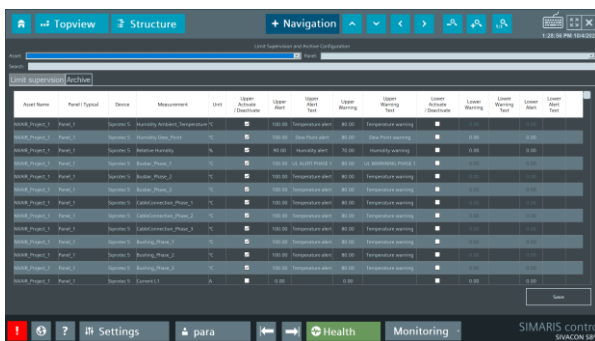
# SIMARIS control



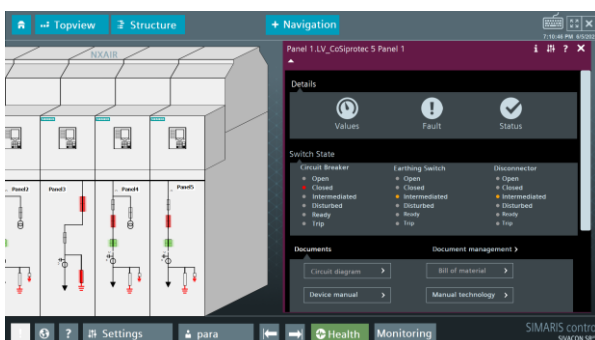
Similar to Electrification X, **SIMARIS control** provides a detailed overview of your **E-House Health Status** and its individual system components. The entry page offers quick access to a top view of E-House assets, displaying the alarms and health status of each component. As an **on-premise** solution, SIMARIS control operates without needing internet connectivity, ensuring that all archived data stays within the customer's premises.



The central **Alarm List** is accessible from the main overview page. This alarm window serves as the primary starting point for local root cause analysis. This list shows all warnings and alerts with timestamps and key details like **alarm class**, description, location, and direction. The **alarm navigation** function lets users navigate to the alarm source by tapping on the relevant alarm. The system will enhance asset transparency by making all historical alarms accessible in the Historical Alert list.



The **Limit Supervision** function generates **warnings and alerts** for limit violations based on configurable thresholds. It keeps an eye on limit violation of primary system parameters of the E-House system, such as current, voltage, and power, as well as ambient conditions like temperature and humidity. This **continuous supervision** provides early indications, allowing users to take corrective actions and plan maintenance activities to avoid unplanned shutdowns.



**SIMARIS control** enables the visualization and **Asset transparency** of E-House system components, such as LV switchboards, MV switchgear, transformers, and other peripheral devices. It provides intuitive visualization of assets along with operational data, statistical data from devices, alarms, and status information.

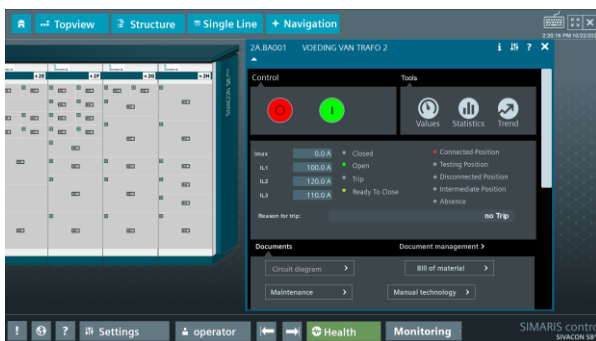
In addition to monitoring, control functions are available based on device support. Features like the multi-trend window allow users to monitor and compare data across feeders or switchgears for **trend analysis**. Easy access to the digital document repository and **maintenance logbook** saves time during shutdowns or maintenance, improving maintenance planning.



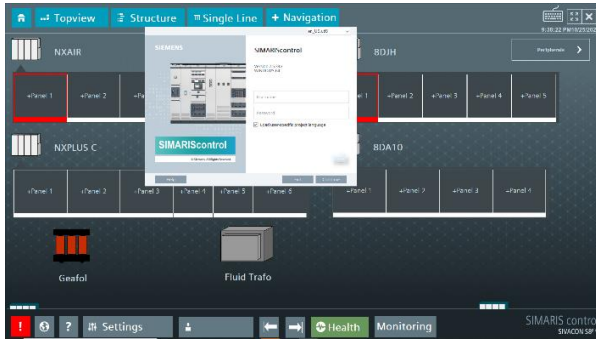
**SIMARIS control** assesses the health status of key E-House assets using device statistical data and **condition monitoring** data from additional sensors. SIMARIS control provides health status monitoring for MV assets through **temperature** and **humidity, partial discharge** and **circuit breaker monitoring**. For LV switchboards, it offers health status monitoring based on device statistics and continuous temperature monitoring with limit supervision. The **Analysis view** provides an up-to-date overview of asset health, saving you time by eliminating the need for manual inspection visits. This improves risk management by identifying potential breakdowns and enabling proactive maintenance planning based on the health status of assets, thereby saving on unplanned maintenance costs and preventing production losses



One of the most crucial assets in the E-House are the **circuit breakers** within the various switchgears. Managed by their respective protection devices, these can be accessed centrally via SIMARIS control. This system offers sophisticated health status monitoring of circuit breakers based on their **electrical and mechanical lifetimes**, as well as by tracking the **operation timings** of opening and closing coils and the spring charging motor. Health status monitoring ensures early fault detection and device availability, which helps prevent unwanted downtime and EHS incidents.



The asset **control function** for local switching operations, particularly for **LV switchboards**, is crucial for scenarios such as commissioning, maintenance, or communication failures with the higher-level system. Despite the rigorous testing and high safety standards of SIEMENS switchgears, power faults can still present risks during manual switching. To enhance safety, operating or maintenance personnel can use **SIMARIS control** to perform switching operations from a safe distance on-site. These control functions are executed without bypassing any protection functions or devices, ensuring maximum safety.





































**SIMARIS control** also includes a **remote visualization** feature, allowing you to monitor your E-House assets remotely, whether within your company premises or from outside. With an additional license for remote visualization and proper **user authorization**, you can have multiple SIMARIS control dashboards with the same look-and-feel using any computer, laptop, or portable tablet, as long as your device is on the same IT network. This provides higher **flexibility** and **availability** of the monitoring system, enhancing the overall monitoring experience.






As highlighted in Electrification X, rising energy costs have become a significant expense for operating plants and E-Houses. **SIMARIS control** offers an on-site basic **energy monitoring** solution, providing a comprehensive overview of energy consumption, costs, and emissions at the switchgear level. This helps you identify potential savings, avoid penalties, and effectively manage your power distribution system, contributing to overall **sustainability**.

IOT APPLICATIONS FOR ELECTRIFICATION AND AUTOMATION

# Function Overview

Functionality	Electrification X	SIMARIS control
Map View	 Possible to connect multiple locations	 On-premise software
Event and Alarm List		
Asset Transparency		
Operational Values		
E-House Asset Health Status		
Temperature & Humidity Monitoring		
Circuit Breaker Monitoring (MV)		
Partial Discharge Monitoring (MV)		
Distribution Monitoring		
Records and Logs		 covered by additional systems
Energy Monitoring/ Sustainability		
Energy Cost Analysis		
Load Measurements/ Heatmap		
Limit Supervision		
Vulnerability Monitoring		
Digital Documentation Repository		
Maintenance View & Task Management		

-  included
-  not covered
-  in implementation

**Published by  
Siemens AG**

Smart Infrastructure  
Electrification & Automation  
Mozartstraße 31C  
91052 Erlangen, Germany,

For more information, please contact Customer Support:  
[siemens.com/energy-automation-support-contact](https://www.siemens.com/energy-automation-support-contact)

**For the U.S. published by  
Siemens Industry Inc.**

3617 Parkway Lane  
Peachtree Corners, GA 30092  
United States

[siemens.com/e-house](https://www.siemens.com/e-house)

© Siemens AG 2026.

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.