SIEMENS SICAM Microgrid Control User Guide

Contents

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Specifications

- **Manufacturer:** Siemens AG
- **Product Name:** SICAM Microgrid Control
- **Website:** siemens.com/microgridcontrol
- **Interface:** Human-machine interface
- **Supported Protocols:** IEC 60870-5, MODBUS, etc.
- **Supported Components:** Generator, Photovoltaic, Loads (diesel generator, CHP, gas turbine), External grid, Wind, Batteries, e-car charging infrastructure

Product Usage Instructions

Installation

- Follow the installation guide provided with the product to set up the SICAM Microgrid Control solution.

Configuration

- Configure the system settings through the human-machine interface to integrate the various components of the microgrid.

Monitoring and Control

- Use the control and automation features to monitor and manage the microgrid components effectively.

Energy Efficiency Optimization

- Utilize the system to improve battery plant energy efficiency by analyzing data and optimizing energy usage.

Security and Stability

- Ensure grid stability by monitoring voltage/frequency boundary violations and implementing generation forecasts based on historical and weather data.

Frequently Asked Questions

Q: What are some benefits of using SICAM Microgrid Control?

A: The benefits include improved energy efficiency, minimized operational expenses, enhanced security, and compliance with industry standards like IEC 62898-2.

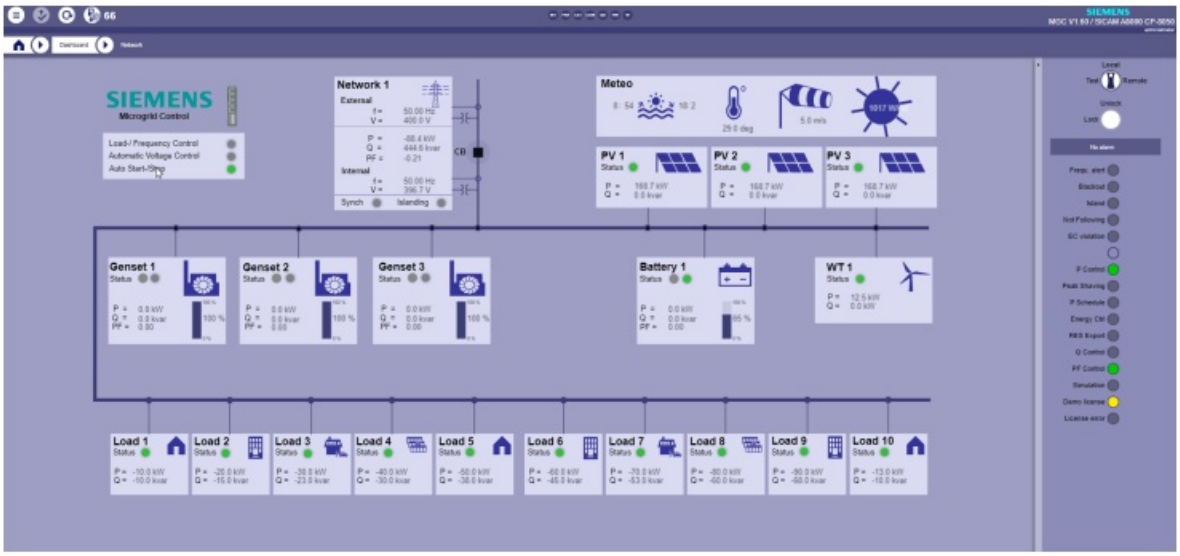
Q: How can I get more information about the product?

A: You can contact Siemens AG Smart Infrastructure for further details either in person or electronically. Visit their website at **siemens.com** for additional resources.

Set apart your battery

Set apart your battery in a green, competitive market

- Battery manufacturing requires substantial energy, often making energy management a critical aspect of operational efficiency
- The battery industry is facing an extraordinary surge in demand due to the global push for electric vehicles and renewable energy storage solutions, paralleled by mounting pressures to reduce carbon emissions.
- Energy-intensive battery manufacturing requires a high availability of power supply and efficient consumption.
- Tracking the carbon footprint of batteries produced necessitates the integration of renewable energy sources.
- Utilizing onsite renewable energy sources, such as solar panels, in combination with Battery Energy Storage Systems (BESS), can help the plant achieve greater energy independence from the public grid and its energy price fluctuations.
- This creates a robust and predictable foundation for OPEX forecasts.



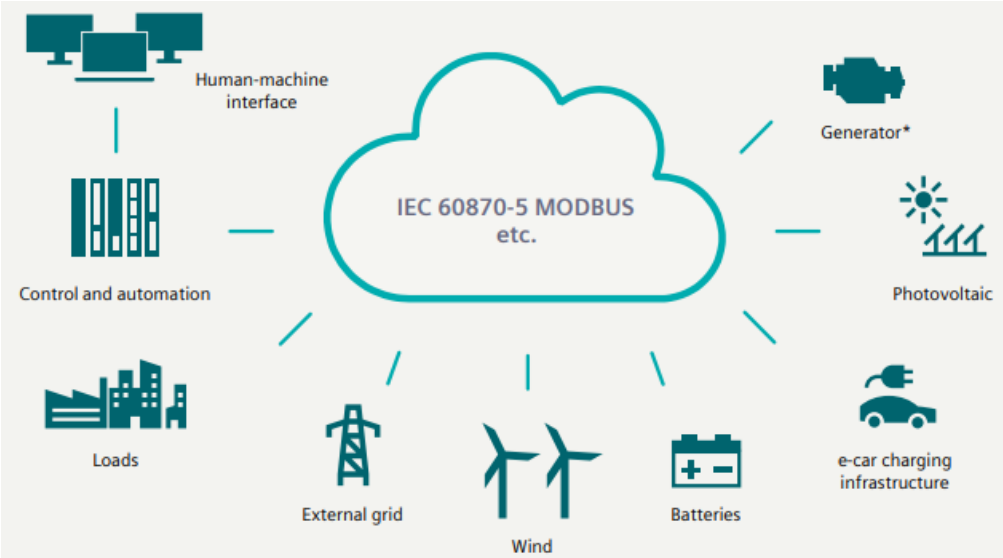
- Improve battery plant energy efficiency and independence with the SICAM Microgrid Control solution.

Minimize OPEX Maximize security

Benefits at a glance

- Optimal efficiency is realized via a robust power system utilizing renewable sources.
- Excellent grid quality meets the stringent requirements of autonomous grid operation.
- Straightforward optimization capabilities enable cost-effective operation
- The adoption of renewable energies advances climate goals by facilitating CO2 reduction.
- Resource-efficient energy use protects the environment and minimizes costs

Microgrid Control Configuration



A microgrid you can rely on

Asset monitoring

- Integration of asset status, measurement, and monitoring devices
- Automatic derivation of required system responses

Blackout detection, black start, and automated grid modes

- Blackout detection and indications by evaluating related measurements
- Automatic repowering of the microgrid by executing a black start sequence
- Automatic re-synchronization to the distribution grid after blackout
- Control of voltage and frequency to ensure grid stability

Reserve management

- Stable grid operation by including spinning reserve requirements
- Balance of fluctuations in renewable generation
- Shedding of excess energy in response to voltage/frequency boundary violations

Automatic start of backup generators

- Protection against short circuits and faults
- Reduced operating costs by using diesel generators mainly as backup
- Generation offsetting and balancing
- Minimized fuel costs and challenges linked to fossil fuel supply
- Improved generator performance
- Optimized generator efficiency

Peak shaving

- Optimal shift or reduction of peak loads
- Storage of energy during low-demand periods

Integration of infrastructure for electric vehicles

- Dynamic load management for charging units

State-of-charge management

- Storage of energy in case of excess renewable energy
- Ensuring minimum energy content
- Charge/discharge schedules

Load and renewable generation forecasting

- Manual input or import of power and weather forecast
- Electrical/thermal load and renewable generation forecast based on historical data, when considering weather forecast

Economic and environmental indices

- Reduced CO2 emissions
- Fuel-cost savings

Integration of thermal assets

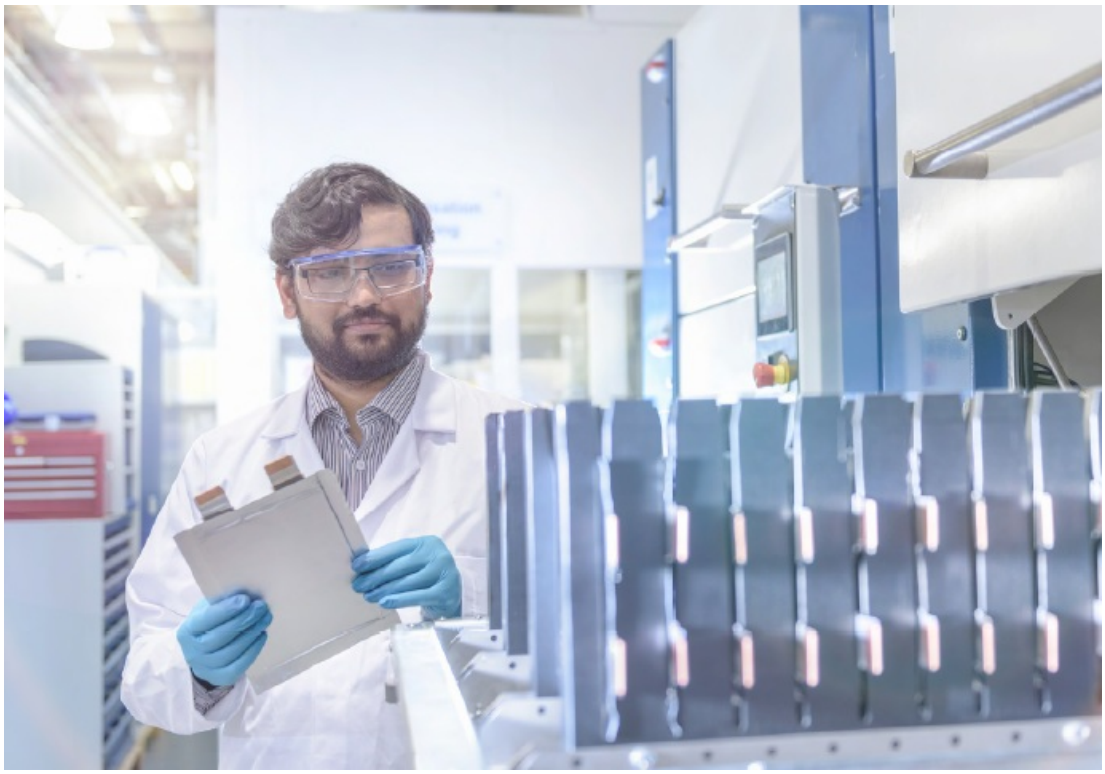
- Control based on thermal grid pressure
- Control with thermal targets

Energy and ancillary services markets

- Automated mechanisms/workflows for market participation
- Automatic services provisioning
- Algorithms meet the IEC 62898-2 standard

SICAM Microgrid Control benefits

- SICAM Microgrid Control can be seamlessly integrated into the SIMATIC PCS 7 process control system.
- Enables versatile communication through multiple protocols and media, meeting various connectivity requirements.
- A scalable solution that guarantees uninterrupted service and adaptability to growing demands.
- Intuitive operation through SICAM WEB and SIMATIC PCS 7, simplifying user interaction.
- Interdisciplinary engineering by standardized configuration.
- A high level of protection through comprehensive security protocols, safeguarding system integrity.



CONTACT

- We would be happy to tell you more, either in person or electronically.
- **Click here to reach out to us**
- **Find more information online**
- Published by
- Siemens AG
- Smart Infrastructure
- Electrification & Automation
- Mozartstrasse 31c,
- 91052 Erlangen, Germany
- For the U.S.
- published by
- Siemens Industry Inc.
- 3617 Parkway Lane
- Peachtree Corners, GA 30092
- United States

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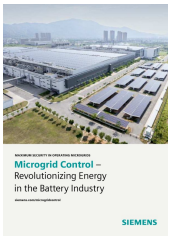
- The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products.
- The requested performance features are binding only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

Documents / Resources

	SIEMENS SICAM Microgrid Control [pdf] User Guide SICAM Microgrid Control, SICAM, Microgrid Control, Control

References

- Microgrid Control – a SICAM application - Siemens Global
- User Manual