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Sitras iEMS

Intelligent energy management system for traction power supply and rail infrastructure

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The intelligent energy management system Sitras® iEMS is our response to the rising market demand for optimizing energy supply for traction power supply and rail infrastructure and for increasing overall energy efficiency.

Philosophy

Sitras iEMS fulfils established requirements for an energy management system, but furthermore, it focuses on the active management of loads and intervention. The use cases and possibilities therefore are manifold and specific from project to project or depending on customer's situation. Thus, for our solution we put high attention on its flexibility and capability for integration.

The energy management system Sitras iEMS is designed on the same basis as our Scada solution Sitras RSC. This brings benefits to data collection, data storage and the collaboration of functionalities as well as corresponding actions to control devices. Sitras iEMS provides the market typical communication protocols, which facilitates integration into existing networks. Furthermore, Scada functionalities may be added if required.

Sitras iEMS supports you with your efforts to increase energy efficiency, for example by processing and evaluating of energy data, which are required to fulfil requirements by an ISO 50001 energy management system.

Full transparency of energy flow and consumption for:

- Energy sensitive operation
- Prevention of undesirable load peaks
- Forecast and optimization
- Realization of customer internal efficiency targets and requirements on sustainable installations and designs
- Realization of governmental regulations e.g. for reduction of carbon dioxide

Function

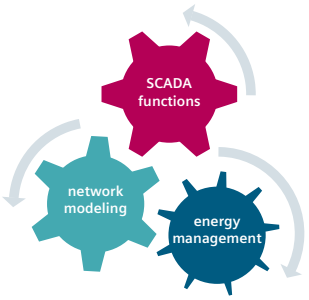
Monitoring of energy values and power quality
- Data acquisition / interface and calculations
- Visualization of values, trends and comparisons
- Monitoring of value limits and alerting

Reporting and information management
- Central “cockpit” displays with KPI values, trends, bar charts, ...
- Standard reports and customer specific reports
- Time and event based documentation
- Energy summation per defined area
- Data exchange with further IT systems

Load flow display
- Visualization of load flow and load limits based on measured electrical current values
- Identification of overloaded network sections
- Trend based forecasts per defined calculation cycles

Load management
- Time and event based load changes by means of pre-defined processes
- Intelligent interventions and switching operations (e.g. rule-based implementation of network simulations)
- Scenario management e.g. for stepwise energizing of components or stations
- Situation based guidance and recommended actions for operator

Especially concerning load management, our concept provides advantages due to the common platform of our Scada system and Sitras iEMS. Further advantages result from the capabilities of implementing our simulation and design competence as project specific stored rules.



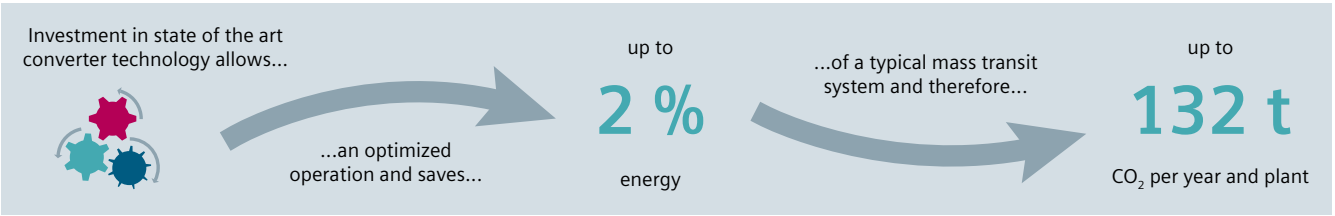
Example for load management

Electrical networks for traction power supply are complex systems. Highly variable loads due to different train types or operation schedules complicate an energy optimized operation of the electric grid.

An important characteristic in traction power supply is the no-load voltage of the individual network sections. The optimum of the no-load voltage is depending on time and location of load in the sections. Thus it would be ecologically worthwhile to adapt the no-load voltage to the operational conditions continuously.

Example calculations for real traction power supply networks show potential for energy savings of approx. 2 % per substation. Considering the amount of substations worldwide, this means an enormous potential.

In combination with our simulation software Sitras Sidytrac and the energy management module Sitras iEMS, this potentical can be leveraged.



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