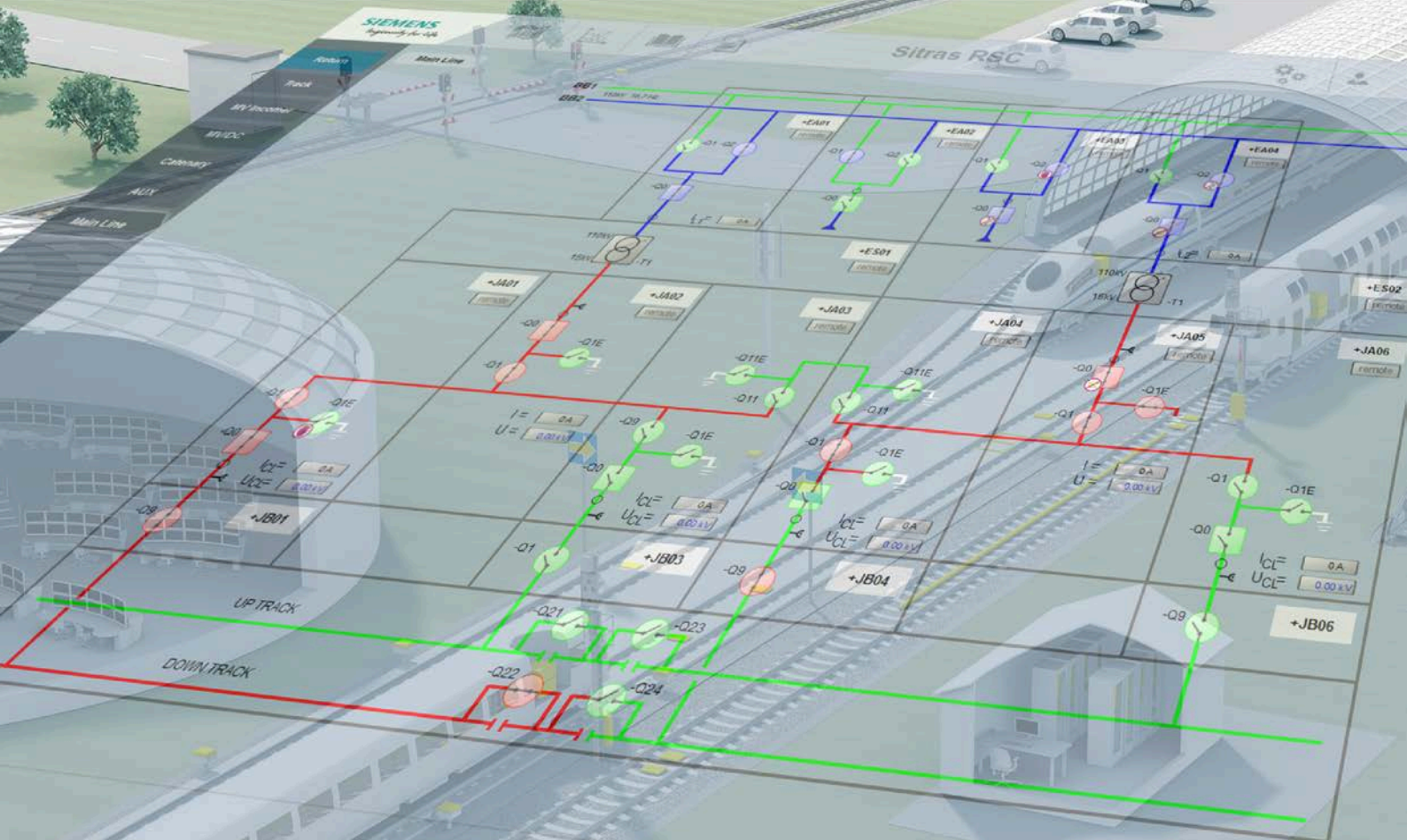




Version
1.1.5

PRODUCT INFORMATION

Sitras RSC

Control system and station operation
for traction power supply and railway infrastructure

SIEMENS

Purpose and use

The Sitras RSC (RailSCADA) power network control system is used for control and monitoring purposes and for data archiving and evaluation for the following mass transit and main-line railway applications:

- Traction power supply
- Auxiliary power supply
- Railway infrastructure
- E-mobility applications, for example electrified heavy-load vehicles

The integrated energy management functions make it possible to identify energy consumers (transparency) and to analyze and optimize power draw for improved energy efficiency.

This gives operating personnel a quick and reliable overview of the operating status of the system.

Areas of application

Power network control system and station operation for traction power supply

- AC switchgear
- DC switchgear
- Low-voltage switchgear
- Lineside equipment
- Disconnectors and drive mechanisms
- Contact line monitoring systems

Fault management for railway infrastructure

- Video surveillance
- Lighting
- HVAC
- Tunnel ventilation
- Elevators and escalators
- Automatic ticket vending machines
- Sliding gates and doors
- Fire and intrusion alarms
- PA and CCTV surveillance systems
- Switch heating systems
- Switch control systems

Features

- Highly cost-efficient in day-to-day operation thanks to transparency in energy management and to proactive fault management and equipment monitoring
- Development process SIL 2-certified in accordance with EN 50128: 2011
- Object-oriented Engineering Studio (editor) for easy configuration
- Scalable system covering everything from straightforward station operation to redundant, distributed control centers
- Distributed hot-standby systems for high availability
- Flexible customer-specific solutions for interfaces, functions and system configuration
- Dynamic network topology for comprehensive depiction of power network state and operating state at all times
- Visual indication of supply zone
- Switching preview depicting the consequences of a switching operation before it is executed
- Window area of display allows multiple control windows to be open at the same time and arranged in any position (multi-window)
- Topology manager – the dynamic network topology determines and visualizes the power network state and operating state in full (for example energized, not energized, grounded) at all times
- Switching preview depicting the consequences of a switching operation before it is executed
- Energy management for presentation and evaluation of energy data and key energy performance indicators, load flow diagrams and load management
- Connectivity – parameterizable data export for data sharing with maintenance management systems
- Asset monitoring – data sharing with rail operations and building monitoring systems over standardized interfaces

Philosophy

The Sitras RSC power network control system supports modular configuration. This enables it to cover all monitoring fields of application optimally, from station operation to single-user systems to high-availability distributed hot-standby systems.

Sitras RSC is used for operation and monitoring in the station power supply control system as the station human-machine interface (HMI).

The Sitras RSC power network control system can be used not just as a central control system, but also for local power substation control and station control. This makes it possible to manage operations with a standard user interface and a common database (configuration data) for straightforward and convenient system administration and future system expansion.

The Sitras RSC power network control system can control and monitor a multitude of different, independent subsystems, all of which it brings together in a standard user interface to make the operator's job as easy as possible.

Hardware/operating system

The Sitras RSC power network control system uses standard computer hardware with the Microsoft Windows® operating system. Panel PCs or touch-operated embedded systems are used for station operation.

Sitras RSC can easily be integrated into existing secure IT environments.

Flexibility

As the successor of Vicos RSC, the Sitras RSC power network control system is a futureproof migratable system. The system configuration can be adapted to each specific set of requirements in terms of functionality, capacity and security. Data sharing with other systems is straightforward, as is integration into multifunctional workstations as an integrated control center.

Parameterization/operation

The Engineering Studio editor makes it easy to expand systems already in place and change the parameterization of existing data. Engineering Studio provides an operator-friendly user interface and a large range of helpful functions to assist with the creation of projects and process diagrams. It also includes a symbol library with ready-made graphics devised especially for the traction power supply field.

No programming knowledge is needed to parameterize Sitras RSC.

Control elements on the user interface can be designed as required using the Smart Object Composer, which makes it easy to match logos, colors, style etc. to the relevant corporate design throughout.

The object-oriented Windows-style user interface is perfectly intuitive, ensuring the system is simple to operate. Sitras RSC can be used as both station HMI and control center operator console, opening up the possibility of end-to-end system operation based on the same system data.

Service/maintenance

The Sitras RSC power network control system provides capabilities for self-testing, on-site maintenance and secure remote service via the Siemens common Remote Service Platform (cRSP).

Energy management

The Energy Management System (EMS) supplementary module enables the Sitras RSC power network control system to assist with efforts to reduce energy consumption by presenting and analyzing energy data and key energy performance indicators. Active consumers can be identified dynamically during operation or using archived values and compared over time, and predictions of their future behavior can be derived.

Combined with reports generated by processing and evaluating energy data, this creates the level of transparency in respect of energy data that customers need to comply with the requirements of DIN EN ISO 50001, for example.

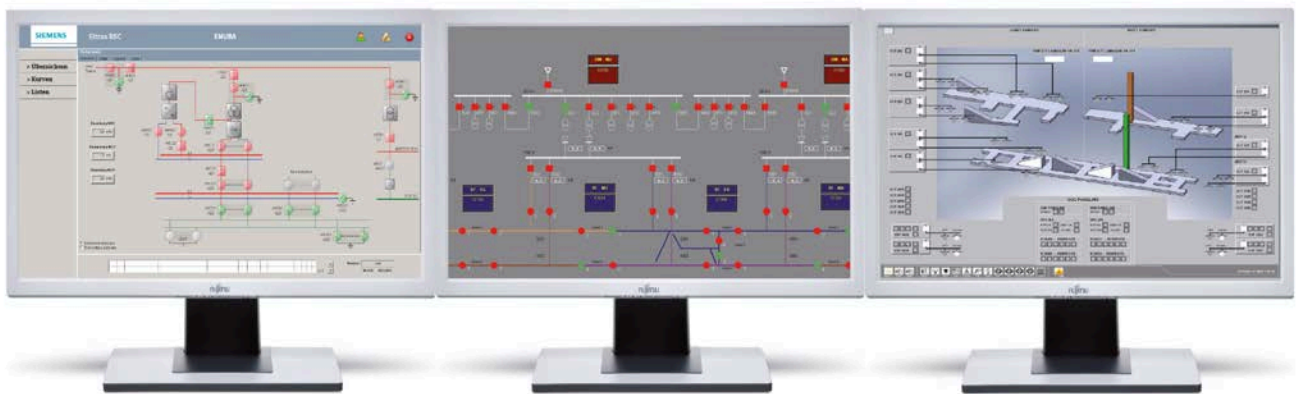
Not only can specific items of energy data be presented, but the distribution of the current flow in the railway electric power network can be visualized ("load flow diagram") and overloading of individual network sections can be identified.

Sitras RSC makes it possible to reduce energy costs through load management (by changing the load over time and in response to events).

Function

Properties

- Licensing for the Sitras RSC control system product is offered under an OEM product strategy. The system is then realized by the partner.
- The upgrade strategy provides for the system data to be transferred when new system versions are deployed rather than having to be acquired again. Existing systems can easily be extended with new functions.
- The energization status of the power network is illustrated dynamically. Statuses such as "Energized", "Not energized" and "Grounded" are automatically determined and displayed topologically, rendering traction power supply networks much easier to understand. The visual supply zone indication additionally provides a depiction of the power network connection elements color-coded by "supply sources". The "Multiple energized" status is visualized here in addition to the "Not energized" and "Single energized" statuses.
- The integral switching preview provides optimal assistance for decision-making by allowing the operator to view the consequences of switching operations before executing them.
- Freely configurable switching sequences enable complex operations to be automated and consumers to be disconnected in response to time-based or event-based triggers. A switching sequence can involve individual steps being completed in a defined order or multiple steps being completed in parallel.
- The window-based user interface (multi-window) supports having multiple control windows open at the same time and allows these windows to be positioned anywhere within the window area of the display. The operator's preferred control window layout is retained even after logging out and logging in again.
- A large number of languages are supported for operators and it is possible to change language during operation.
- Data archiving can proceed using a dedicated system database or via PostgreSQL.
- Comprehensive maintenance and fault reporting concepts are supported. These include evaluations, notifications via e-mail or SMS and the creation of maintenance jobs.
- The freely parameterizable individual and user-specific access rights enable reliable operational management tailored to the operator.
- Parameterizable interlocks automatically prevent conflicts that could arise when linking different switches, minimizing the scope for operator error.
- The system is equipped with a wide range of standardized communication interfaces including IEC 60870, DNP3, Modbus, Sinaut, BACnet, SNMP, OPC, and Simatic S7.
- The asset monitoring functions share data with rail operations and building monitoring systems over standardized interfaces. Depicting the status of the selected resources facilitates transparency for effective maintenance. The switching cycle and operating-hours counters enable maintenance work to be focused on priority resources.



Access control



Camera



Clocks



Elevators



Escalators



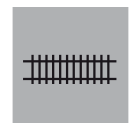
Tickets



Ventilation



AC power supply



Wayside equipment



Fire protection



Intrusion



Lighting



Maintenance



SMS Service



Contact line



Radio



Air-conditioning



DC power supply

Process interface

References

We have been developing control system solutions for traction power supply and railway infrastructure for more than 40 years.

Our SCADA systems are used around the world by numerous mass transit and main-line railway operators and in e-mobility.





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