



The Trackguard Sicas S7 ECC electronic interlocking

Safe, economical and flexible

With the Trackguard Sicas S7 ECC electronic interlocking

Fit for the future



All over the world, safe and environmentally friendly railways provide convenient mobility. In cooperation with railway operators in many countries, Siemens has developed equipment, components and systems for signaling and control which have proven themselves in mass transit and regional services as well as industrial railways worldwide.

Interlockings, train control systems and track vacancy detection systems are essential for efficient rail operation. Powerful and highly available signaling and control systems help to make rail services even safer and more cost-effective.

Trackguard Sicas S7 ECC – economical and flexible

The Trackguard Sicas electronic interlocking system (Siemens computer-aided signaling) is a typical example of how Siemens responds to the demands of the railway market for customized interlocking systems.

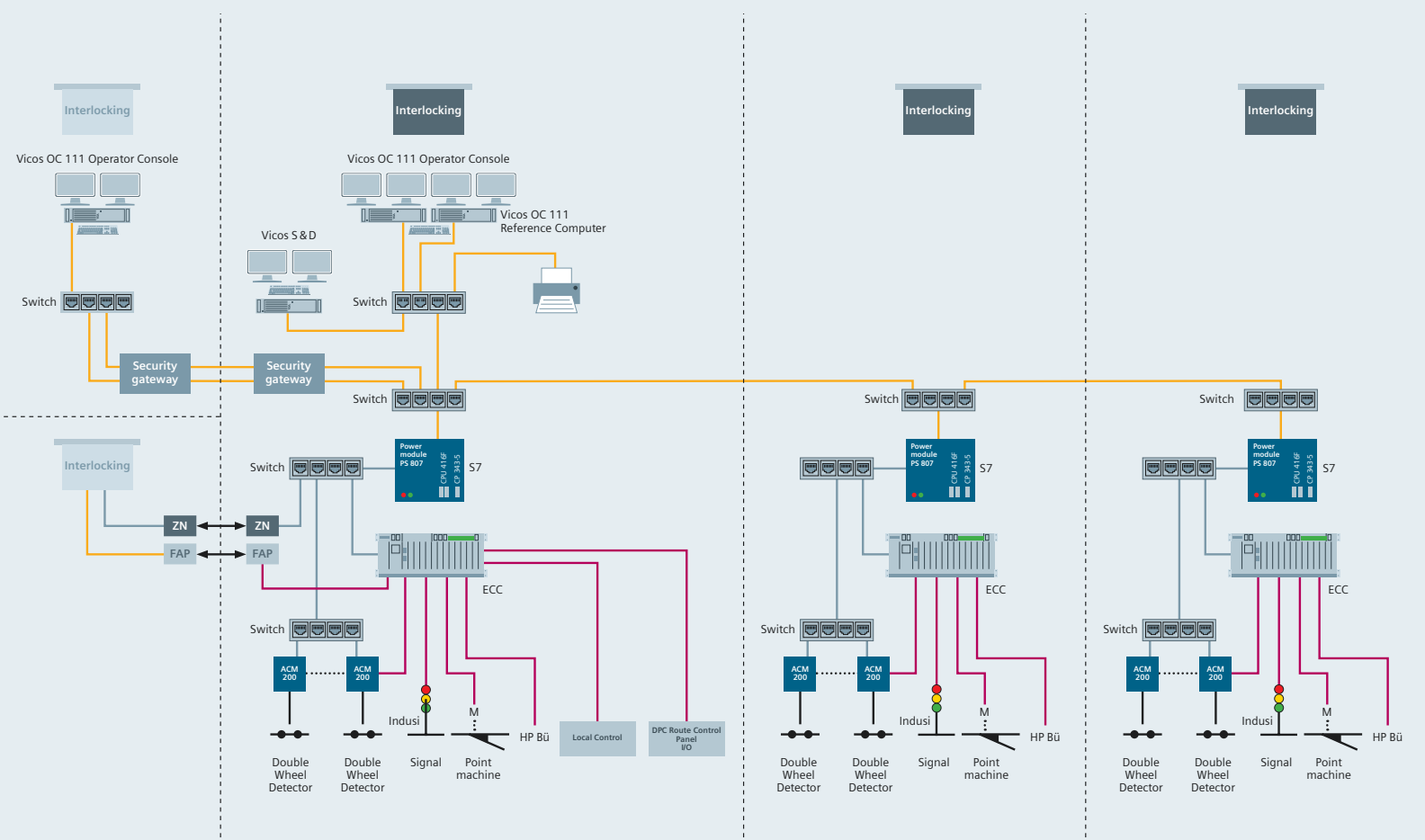
Trackguard Sicas electronic interlockings are low-maintenance systems which are characterized by high safety and availability, cost-effective operation and flexibility. They provide solutions for all kinds of signaling and control systems for mass transit and regional services as well as industrial railways.

Trackguard Sicas electronic interlockings have a long service life. The well-structured system and clearly defined interfaces guarantee easy and fully compatible replacement of components or equipment.

Thus, even many years after commissioning, it is possible to keep pace with technical innovations.

Benefits

Low acquisition and operating costs High availability
Highest safety level (SIL4)
Less hardware
Compact design
Flexibility
Optimized energy consumption
Long service life



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Fail-safe interlocking technology for more than a decade

The Trackguard Sicas interlocking hardware core consists of computers operating in accordance with the principles of the tried-and-tested and safety-approved Trackguard Simis fail-safe microcomputer system made by Siemens. For more than 20 years, Siemens has successfully been developing and implementing electronic interlockings based on Trackguard Sicas computers. To date, more than 300 interlockings equipped with Trackguard Simis computers have been commissioned.

The advantage for innovative and cost-conscious rail operators

The hardware and software modules used in Trackguard Simis interlockings are state-of-the-art and can be flexibly configured to meet even the most diverse customer requirements.

Additional fail-safety and cost savings thanks to a state-of-the-art test center

At Siemens' test center in Braunschweig (Germany), complete interlocking systems can be tested intensively prior to their commissioning on site.

The interlocking software to be commissioned is tested under operating conditions with a wide range of tools using function tests, data tests and stress tests. The most essential benefit resulting from this approach is superior hardware and software quality. This means cost and time savings for rail operators, especially when commissioning the system without disrupting operation.

Moreover, Siemens delivers completely pre-mounted and tested containerized interlockings.



Trackguard Sicas electronic interlockings offer solutions for all kinds of signaling and control systems for mass transit and regional services as well as industrial railways. Several interlocking computers can be interconnected and positioned centrally or decentralized. Furthermore, the fail-safe connection of outdoor components and interfacing to operations control and train control systems is possible.

Safety

Trackguard Sicas electronic interlockings, which have been developed according to the highest safety requirements stipulated in European railway-related CENELEC standards, operate according to the proven and fail-safe Simis principle (Safe Micro-computer System made by Siemens).

Availability

The high reliability of the hardware deployed as well as the redundantly designed hardware core in 2-out-of-3 configuration at control level ensure highest availability.

Maintenance

By using highly reliable hardware, only low maintenance is required.

Economic efficiency

Trackguard Sicas electronic interlockings require only limited space as the equipment can be installed in compact 19" cabinets. These cabinets can be erected in existing buildings or transportable containers. Even solutions without cabinet installation are possible.

The hardware basis is of modular design and requires only a few module types. This reduces spare parts stocking and possible error sources.

The deployment of almost maintenance-free components, low power consumption of the electronic element operating modules and the possibility to set up interlocking software centrally are the reasons for the low life-cycle costs of Trackguard Sicas electronic interlockings.

Flexibility

Trackguard Sicas electronic interlockings can be smoothly adapted to various customer requirements (e.g. centralized or decentralized element operating module cabinets). Thanks to their interface design, Trackguard Sicas interlockings can be easily modified and extended. Modifications of the hardware or a software exchange can be realized during short stoppages without any longer interruption of railway operations.

Siemens competence and know-how

State-of-the-art technology – tailor-made and compact



Excerpt from the Trackguard Sicas S7 ECC electronic interlockings reference list

HPA, Hamburg Port Authority
EVB, Eisenbahnen und Verkehrsbetriebe Elbe-Weser GmbH
EVS, EUROREGIO Verkehrsschiennetz GmbH
Saarbahn GmbH
SWEG, Südwestdeutsche Verkehrs AG
SKW, Stickstoffwerke Piesteritz GmbH
Mibrag, Mitteldeutsche Braunkohlengesellschaft mbH
HZL, Hohenzollerische Landesbahn AG
AKN, Altona-Kaltenkirchen-Neumünster Eisenbahn AG

The first Trackguard Sicas electronic interlocking was successfully commissioned in 1997. Since then, this modular technology has been continuously adapted to new customer requirements – the basic Trackguard Simis principle has remained unchanged. The Trackguard Sicas electronic interlocking system of the latest generation features both the proven Trackguard Simis hardware and standard industrial PC technology.

Trackguard Sicas electronic interlockings are tailor-made

Trackguard Sicas electronic interlockings have a variable scope of functionality to satisfy even the most diverse customer requirements.

- Control and detection of points, signals and other outdoor components
- Route setting and releasing
- Connection of train control systems
- Relief operations and cancelation of operator actions
- Locking and unlocking of individual elements

This functional scope optionally comprises automatic operating modes. Moreover, Trackguard Sicas electronic interlockings allow operation via control centers or local control and display equipment which also permit operation per area or section, for instance.

Trackguard Sicas electronic interlockings are compact (single-cabinet interlockings)

Trackguard Sicas electronic interlockings are compact systems. One cabinet accommodates the computer equipment for a basic interlocking with

- up to 20 elements to be controlled
- up to 8 track vacancy detection operations
- the interface to train control systems
- interfaces to the operating and service equipment (e.g. in control centers)

Trackguard Sicas electronic interlockings are scalable

For communication within a Trackguard Sicas electronic interlocking, the industrial standard Ethernet is used.

Within an interlocking segment, a Trackguard Sicas electronic interlocking of maximum configuration can handle up to 1,600 controlled elements (points, signals, etc.).

The computers can be configured in a way that centralized and decentralized interlocking areas may be set up. Up to ten Trackguard Sicas interlockings can be interconnected.

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