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*Ingenuity for life*

## Uniform parameterisation, operation, and monitoring of intelligent switchboards

SIVACON S8 – SIMARIS control diagnostics station

### Consistently well informed: Recording of device status and energy values

To increase operational reliability and reduce energy costs on a long-term basis, the status of the installed devices as well as the energy flows and electrical values must be known.

Modern low-voltage switchboards, especially Motor Control Centers, use intelligent protection, switching, and control devices almost exclusively. Measuring devices such as SENTRON 7KT/7KM PAC, 3WL/3VA circuit breakers, or the intelligent motor management system SIMOCODE pro provide extensive diagnostics, status, measuring, statistical, and service data. As a result, you will obtain precise and reliable measurements of the energy values for electrical feeders or individual consumer loads. In addition to this, the devices provide you – via standardised bus systems – with important measured values for the assessment of the switchboard state and the network quality, while the possibility of redundant communication up to the withdrawable unit supports a high level of failure safety.

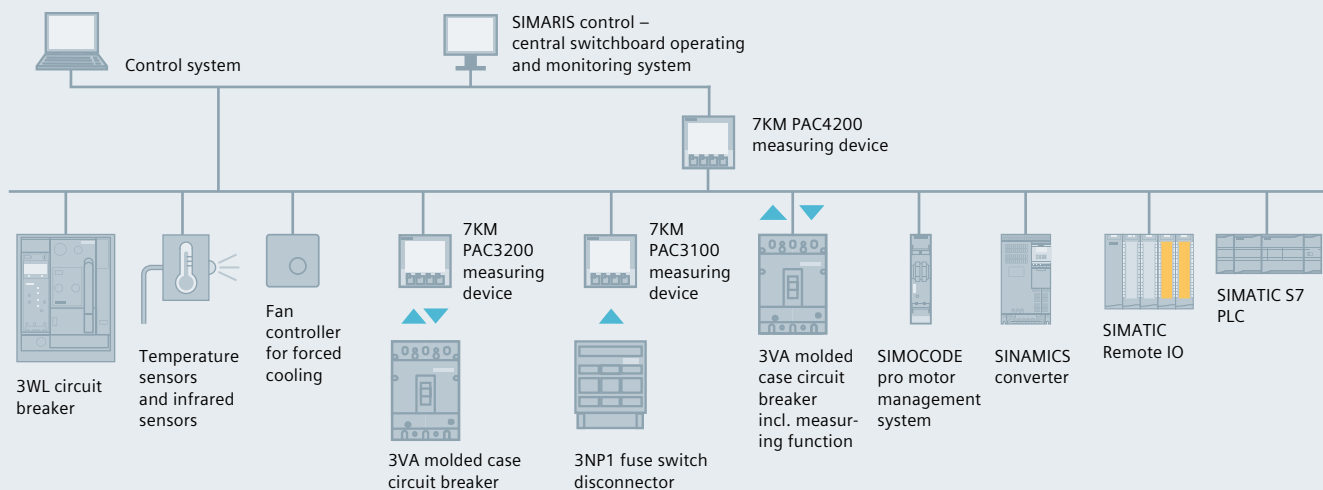
### Simple operation of complex switching devices

Using the SIMARIS control visualisation application from the SIVACON S8<sup>plus</sup> feature package, all communication-capable switching devices can be parameterised, operated, and monitored uniformly. Status information and measured values of devices are displayed comprehensively and clearly, such as detailed warnings and error messages. This helps to easily and quickly diagnose the causes of failure, for reduced downtimes and better switchboard availability.

SIMARIS control can be used as a central operator station directly at the switchboard. Remote access is also possible via a web client. SIMARIS control is integrated directly into the communication system of the switchboard, and it works independently of a higher-level automation system. The connection to energy management, automation, and cloud-based analysis systems contributes to reliable and future-oriented operation.

### Your benefit

- Clear display of all switching states, extensive measured values, status and diagnostics information in a central diagnostics station
- Transparent power flows for identification of potential savings
- Increased switchboard availability through continuous monitoring and preventive maintenance by means of diagnostics data
- Flexible and extendable solution
- Simple data transfer and display to higher-level automation and energy management system
- Future-oriented solution thanks to application on mobile devices and possible integration in cloud-based solution such as Siemens MindSphere



SIMARIS control – for individual, independent diagnostics

### Permanent diagnostics, but how?

While the use of data in the control system for process automation comes down to a few items of status information and individual measured values as well as the control function, the use of device-related display operator panels allows detailed display, but the size of displays and the installation positions restrict clear arrangement and good readability of information. Indicator lights, pushbuttons, or device-specific operator panels also enable signalling and control at the switchboard itself, but the extent of the information to be displayed is extremely limited. Comprehensive and clear presentation of all device information is often only possible with a PC and the appropriate software, with the individual devices requiring different software tools.

### Innovative solution

SIMARIS control is a PC-based software application that is integrated into the communication system as a permanent diagnostics station, thus supporting reliable operation independently of a higher-level automation system. Intuitive operation is provided via touch screen.

SIMARIS control offers an optimum solution for clear, structured, and requirement-oriented local visualisation and control of the communication-capable switching devices installed. Events are shown immediately in individual graphical displays, and they are recorded in centralised alarm lists. With SIMARIS control, operational diagnostics can thus be carried out faster, more flexibly, and more easily. Individual operating parameters like current settings can be modified without parameterisation software. The state of the switchboard can also be monitored by visualisation of additional sensor data (e.g. temperatures).

The hardware of SIMARIS control can be integrated into existing IT structures via the integrated LAN interfaces. Functions such as remote access/monitoring as well as integration in cloud-based analysis systems are thus also possible as an alternative to centralised operation on the on-site panel PC of the switchboard.

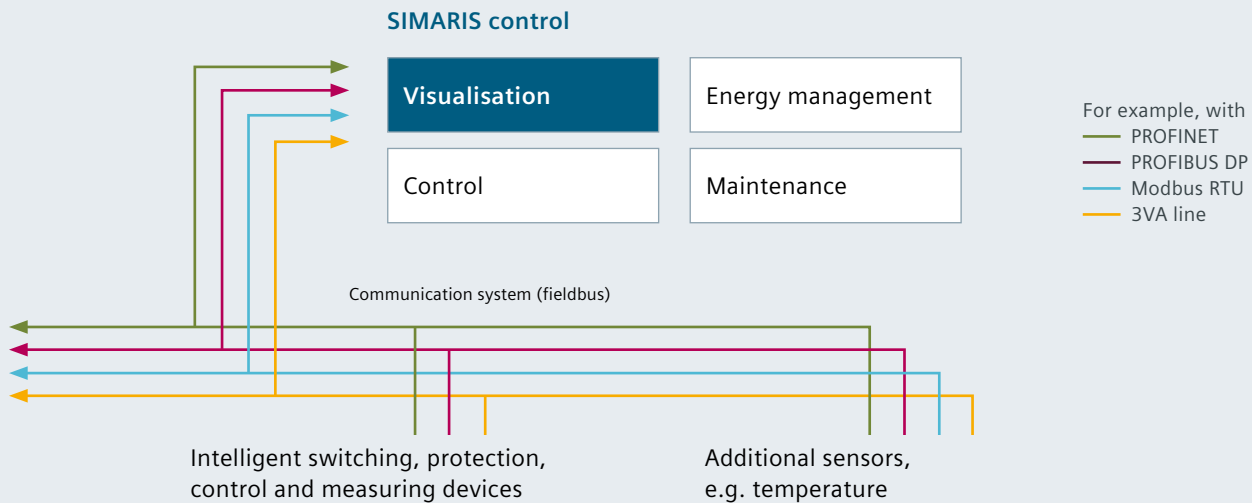
SIVACON S8 also offers communication capable molded case circuit breakers in withdrawable design and fully redundant system solutions for communication. By means of an IEC 61850 Gateway solution, the special data concentrator converts all data into a single IED (Intelligent Electronic Device) node.

### Your advantages

**Uniform and independent local visualisation:**

**Powerful diagnostics station**

SIMARIS control offers an optimum solution for local visualisation and control of the communication-capable switching devices installed. SIMARIS control integrates different bus systems and operates with a standardised data model for Motor Control Centers. Thus, in SIMARIS control, all the information of the communication-capable switching, protection, and measuring devices used in SIVACON S8 is displayed clearly and in a structured, requirement-oriented form. The current diagnostics information of the individual devices is recorded in a centralised alarm list for the complete switchboard. SIMARIS control functions independently of the higher automation level and uses the available switchboard communication system.



## Intelligent switchboard

### Simple and safe operation:

#### For extra safety

A SIVACON S8 switchboard equipped with SIMARIS control is operated through a software interface optimised via touch screen. Navigation across the switchboard structure is very easy and intuitive. With just a few operation steps, extensive feeder-specific detailed information can be displayed from a general overview.

Appropriate authorisation levels are defined in individual user groups to avoid operating errors. Users of the "Guest" group, for example, have no switching authorisation and also cannot make any changes in SIMARIS control.

### Fast commissioning and flexible operation:

#### The digital twin

Individual operating parameters like current settings can be modified without parameterisation software, thus simplifying the commissioning of SIMOCODE motor feeders or the labeling and initialisation of withdrawable units/compartments, for example. With SIMARIS control, the digital twin can additionally be adjusted by the end user during runtime.

Feeder names and comments can be freely modified. Adjustments to the switchboard structure resulting, for example, from moving, adding, or removing feeders can be carried out in SIMARIS control by users themselves.

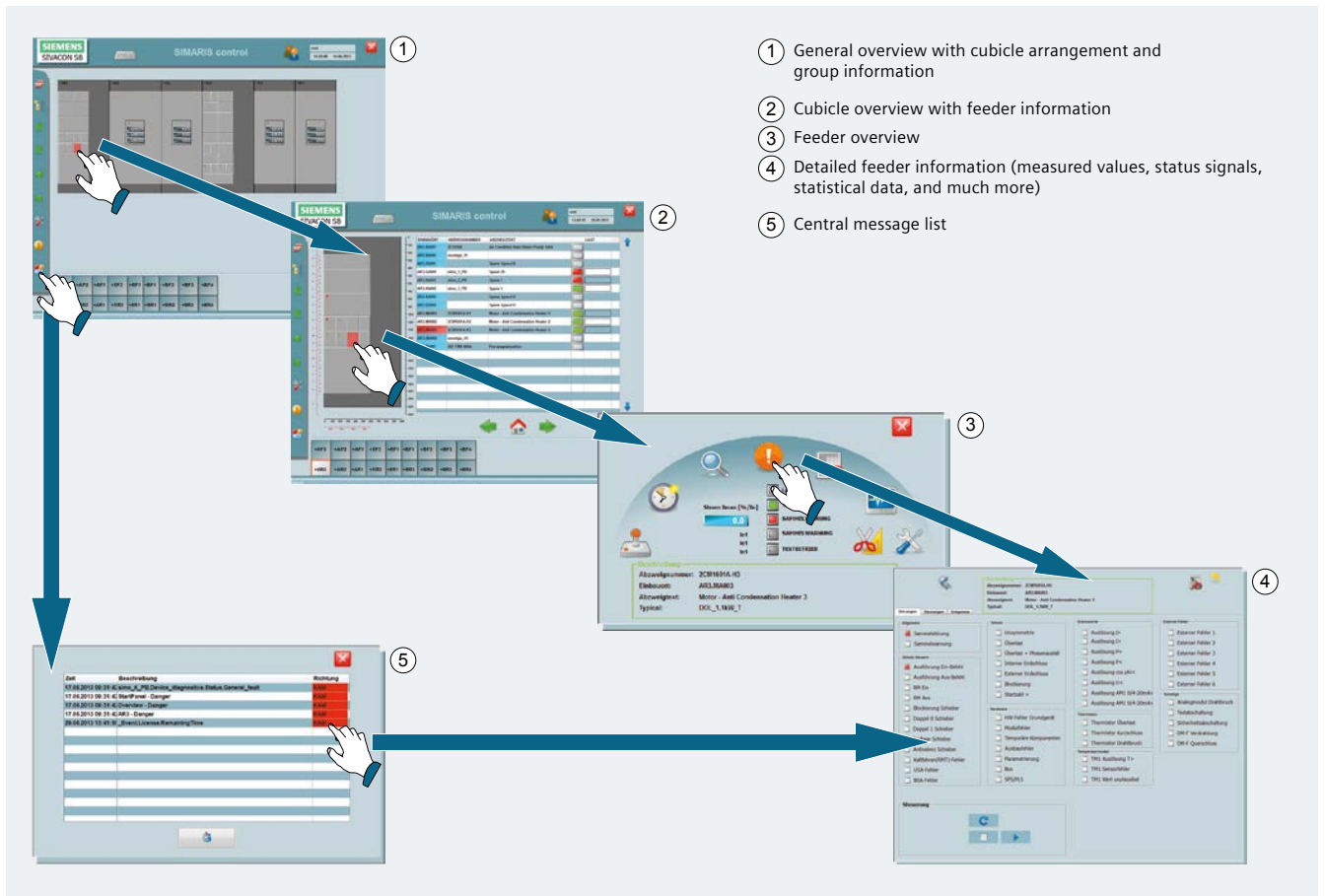
### High level of switchboard availability: Preventive maintenance and energy management

With SIMARIS control, operational diagnostics can be carried out faster, more flexibly, and more simply. Threshold values for monitoring, control, and diagnostics can be set for early signalling. Comprehensive display of all measured values, status signals, and statistical data provides a high level of transparency right down to the individual feeder. Statistical data such as switching frequencies, runtimes, etc. support optimisation and planning of maintenance measures. With SIMARIS control, relevant status information of the switchboard such as measured values from temperature sensors can be visualised and monitored, thus reducing downtimes and increasing the switchboard availability. Moreover, the power demand of the switchboard can be analysed and optimised using the consumption values of the feeders.

### Technical features





- Windows PC/industrial PC system with optimised operation for touch screen
- Independent of higher-level automation levels (acyclic communication)
- Use of existing switchboard communication system
- Compatible to various communication systems and network topologies
- Flexible and expandable
- Interfaces for PROFIBUS, PROFINET, Modbus, Ethernet, and others
- Several operator stations possible
- Operation possible via web client or mobile device
- Structured representation of alarms and faults/message list
- Integral user group administration with differentiated authorisations
- Configuration changes possible during operation (changes to number and positioning of feeders, adaptation of feeder names and descriptions)

## Operational concept



Example: Operating options for diagnosing a feeder event

## Benefit from SIVACON S8 step by step

Targets	Benefits	Actuators
<b>1. Recording</b>		
 <b>Recording measured values</b> (among others, energy W, power P, current I, voltage U, ...)	<b>Transparency =</b> Providing the measured value	Examples of integrated communication-capable devices: <ul style="list-style-type: none"> <li>• 7KM PAC measuring devices</li> <li>• 3WL, 3VA circuit breakers</li> <li>• SIMOCODE pro motor management system</li> <li>• SINAMICS converter</li> <li>• Temperature sensors</li> <li>• Infrared sensors</li> </ul>
<b>Recording switching device status</b> (switching frequency, runtimes, ...)	<b>Status transparency =</b> Providing information about installed devices	Examples of integrated communication-capable devices: <ul style="list-style-type: none"> <li>• 3WL, 3VA circuit breakers</li> <li>• SIMOCODE pro motor management system</li> <li>• SINAMICS converter</li> </ul>
<b>2. Visualising</b>		
 <b>Visualising power flows as well as electrical measured values</b> (load profiles, diagrams, current, power factor, harmonics, ...)	<b>Central interface for power transparency =</b> Knowing and visualising the power	SIMARIS control powermanager – power monitoring software
<b>Visualising switching device status</b>	<b>Central diagnostics station for status transparency =</b> Visualising the information down to the individual feeder	SIMARIS control
<b>3. Managing</b>		
 <b>Controlling and parameterising feeders</b>	<b>Uniform operator panel =</b> Parameterising various devices via a single interface	SIMARIS control
<b>Following process changes</b>	<b>Flexible operation =</b> Digital twin can be adjusted during runtime	SIMARIS control
<b>Planning maintenance</b>	<b>High switchboard reliability =</b> Preventive maintenance through fast diagnostics	SIMARIS control
<b>4. Transferring</b>		
 <b>Integration in existing IT structures</b>	<b>Future-oriented switchboard diagnostics station =</b> Uniform interface to higher-level automation and energy management systems and to cloud-based analysis systems	SIMARIS control

Benefit from the advantages of the intelligent SIVACON S8 switchboard step by step – and be prepared already today for the challenges of tomorrow.

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.

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