

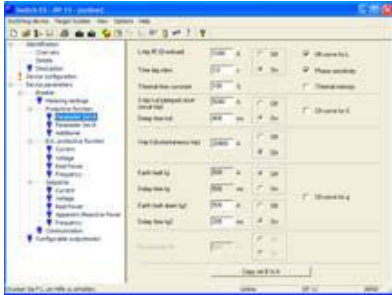
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Planning, Design and Management

Introduction

Overview

Products at a glance

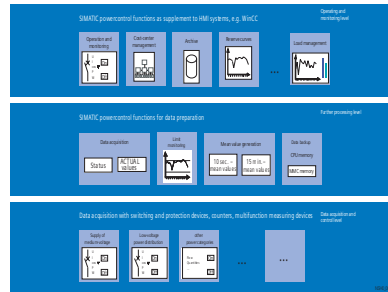


Switch ES Power

Switch ES Power

Shared software platform for the device-specific program versions of the communication-capable control units.

- Clear representation of all available parameters
- All the available status information and measured values are displayed in dialog boxes
- Software for SENTRON WL and SENTRON VL



SIMATIC powercontrol

SIMATIC powercontrol

Throws light on power flows - from infeed through distribution to the consumer - in order to permanently reduce the operating costs of power distribution systems.

- Central overview of all the power flows in a power distribution system
- Knowledge of the demand profile from the continuous acquisition of power data
- Detailed information about the amounts and costs of power consumed

Planning, Design and Management

Switch ES Power

Overview

General

Switch ES serves as a shared software platform for the device-specific program versions of the communication-capable controls. Among other things, this has the advantage that all device-specific program variants are identical in terms of appearance and handling.

Switch ES Power

Switch ES Power can be used to configure, operate and monitor the SENTRON WL and SENTRON VL circuit-breakers through PROFIBUS DP.

Design

The design of both the data tree and the individual data windows has been cross-referenced and harmonized with the structure of the Breaker Data Adapter. As a result, the same functions and information are available. Due to its support of the innovative PROFIBUS DPV1 function, it is particularly easy to link up a computer to the PROFIBUS using Switch ES Power. Simply connect, select the PROFIBUS address and start communication, even if the SENTRON circuit-breakers are simultaneously exchanging data with another station (e.g. S7) via the PROFIBUS.

With Switch ES Power, it is also possible to create parameter sets offline without a direct connection to the circuit-breaker. These parameter sets can then be transmitted to the SENTRON circuit-breakers in the plant at a later stage.

Function

The Switch ES Power is used to load and display the switching device identification data. Depending on the circuit-breaker configuration, the parameters for the protection function (LSING), the extended protection function, the configurable threshold values, the communication, and the configurable output module are displayed. These can be modified accordingly and loaded and stored on the switching device. The following online dialog boxes are available depending on the type of circuit-breaker: main view, diagnostics window, measured values window, a window for displaying the harmonic analysis and one for displaying the curve form memory as well as one dialog box for maintenance and statistics.

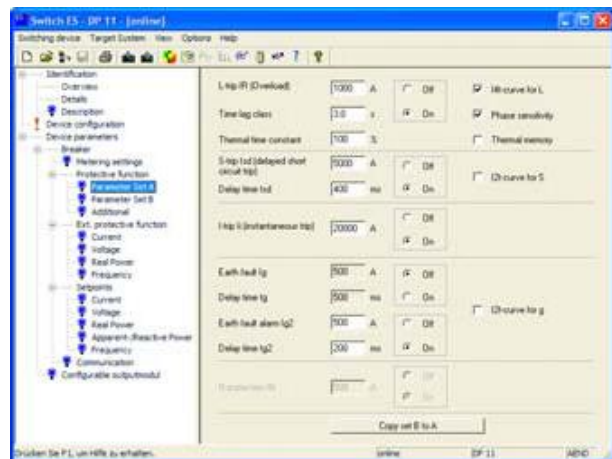
The memory formats of the BDA and Switch ES Power are identical, which means that it is for example possible to generate central parameter files with Switch ES Power and then copy them to a notebook with the BDA for use by service personnel.

Switch ES Power supports all PROFIBUS cards for the Siemens PC/notebook. Some cards require an additional software package (driver); for more details refer to the interactive Catalog CA 01.

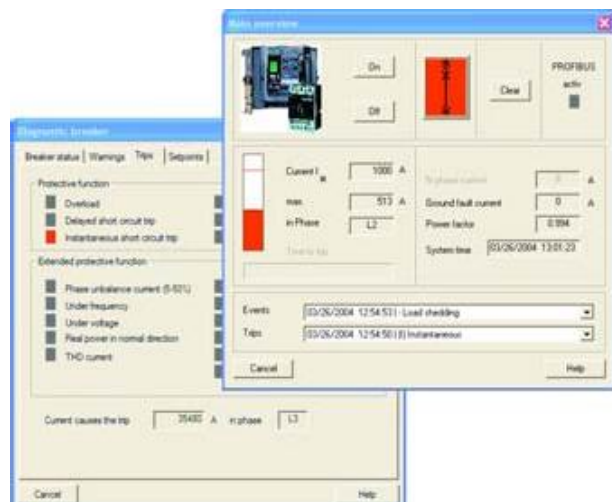
Integration

Object manager of Switch ES Power

The Object Manager (OM) of Switch ES Power is used to integrate Switch ES Power into the STEP 7 environment, and therefore also into the Totally Integrated Automation (TIA) concept. This allows Switch ES Power to be called from the HWConfig Tool from STEP 7, and the SENTRON WL/VL circuit-breakers to be parameterized. This data is then stored in the STEP 7 database and automatically transferred to the circuit-breaker via the PROFIBUS DP during every start-up (PLC, slave).



Adjustment of parameter set A with Switch ES Power



Online functions with Switch ES Power

Planning, Design and Management

SIMATIC powercontrol

Overview

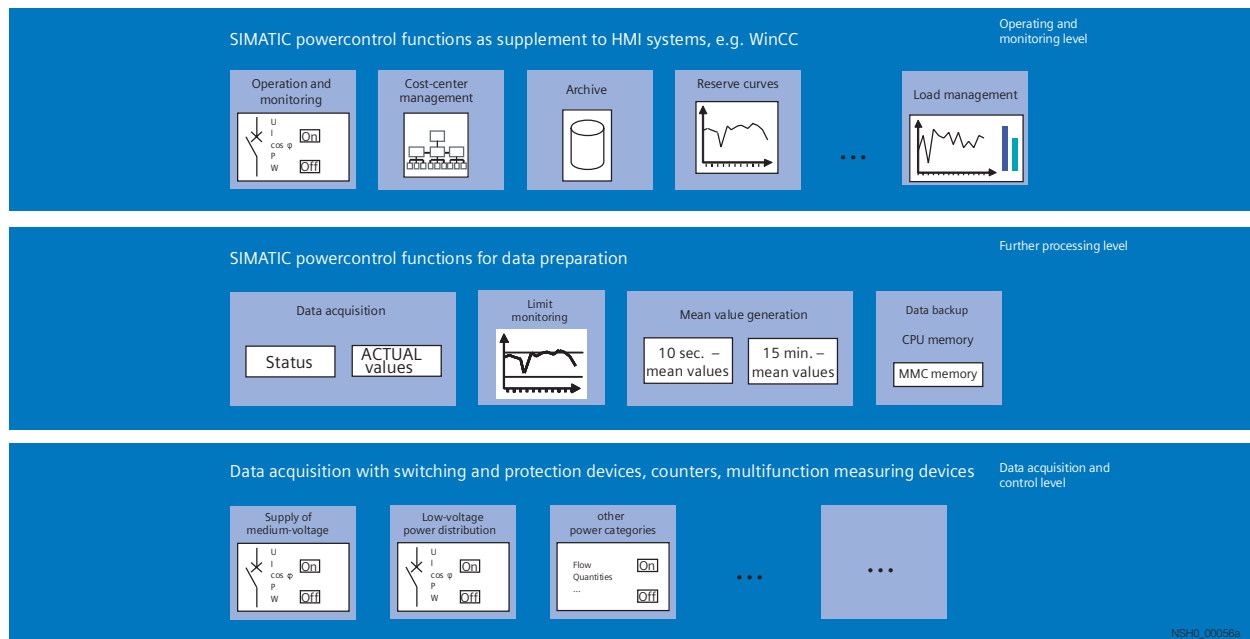
SIMATIC powercontrol

SIMATIC powercontrol throws light on power flows – from infeed through distribution to loads – in order to permanently reduce the operating costs of power distribution systems. The following points are of particular interest in this connection:

- Costs of operating the power distribution system (maintenance, personnel)
- Power consumption costs (power procurement)
- Costs of the power distribution system (investment costs)

The software can be used as a supplement to visualization systems and has an open architecture for integrating in existing HMI software.

Design



In the data acquisition and control level the electrical power data are collected using the integrated measuring functions of bus-capable devices such as SENTRON circuit-breakers, multifunction measuring instruments and power meters, as well as medium-voltage protective equipment such as SIPROTEC. The collection of consumption data of other power categories is possible with corresponding instrumentation.

SIMATIC S7 blocks which were parameterized with SIMATIC powercontrol are responsible in the further processing level for processing all the collected data such as standardization, mean-value generation, time stamping and limit monitoring. The data backup ensures continuous data storage, even if the communication link to the operating and monitoring level is faulty. The executing functions of the load management system are also to be found in this level.

All SIMATIC powercontrol functions in the operating and monitoring level can be integrated in all Windows-based HMI systems, e.g. WinCC, thanks to the open and standardized programming and communication structure. Switching units and protective units from Siemens can be integrated using pre-assembled OCX elements. Uniform elements are available for the integration of other makes of products.

Function

SIMATIC powercontrol increases the reliability of the power supply through continuous data acquisition and archiving. All consumption values are measured and sent through a consistent communication level to a central control room. The main function of SIMATIC powercontrol – operating and monitoring – enables central visualization of the entire power flow in the control room. The individual power currents are evaluated, summarized and documented according to customer requirements. The consumption measurement for a period of time is graphically represented by a reserve curve. The evaluation of this curve provides an insight into the power flow and illustrates the relationship between process and consumption.

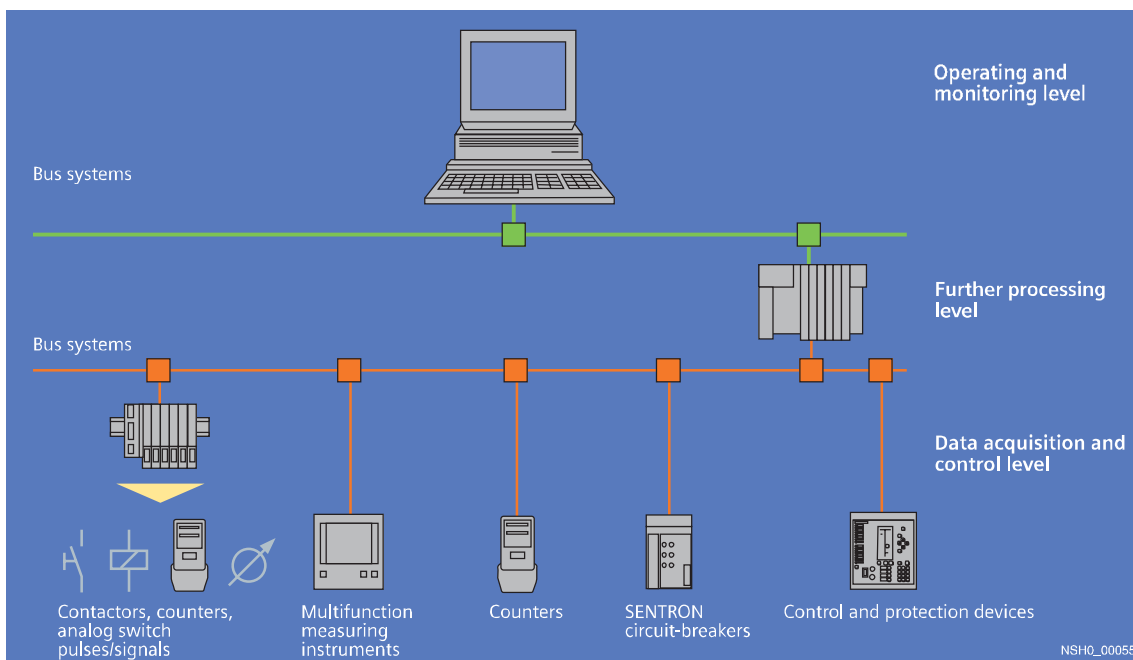
It is possible at any time to obtain a quick overview of the system's current status and to react promptly to limit violations, faults and other signals. With a view to preventative, scheduled maintenance, message texts and switching cycle lists provide valuable information for the efficient organization of servicing and maintenance. Any faults can be quickly diagnosed in detail and rectified with pin-point accuracy. Power consumption becomes transparent, potential savings are systematically revealed, and a higher level of system efficiency is achieved.

For optimum utilization of the power supply agreement, the contractually agreed maximum power should be drawn on con-

tinuously or as uniform a power demand curve as possible – without dips and peaks – is desirable. Such a continuous power demand not only ensures compliance with the power supply agreement but also enables a lower maximum power level and hence a lower power tariff. Limiting the peak power in just a few cases per year can already reduce the tariff by several percentage points. With the "load management" function the power supply agreement is monitored to optimum effect. Load peaks during operation and hence special charges for violations of the terms of your agreement are prevented. Through selective switching and controlling of loads on a priority list, peak demands are kept below the permissible values.

The "cost-center management" function ensures the load-related assignment of the automatically collected consumption data as well as manually recorded amounts of power – be it in-house or as documentation sent to partners. SIMATIC powercontrol not only assigns the amounts and costs of power to specific loads but also automates the process from power measurement to reporting. All power categories – electricity, gas, water, etc. – can be managed by SIMATIC powercontrol and are presented in similar form. No additional or autonomous systems are needed for the data acquisition

Integration



The power distribution system is connected through the data acquisition and control level. Bus-capable devices with integrated instrumentation are used for this purpose. In the low voltage section the units used are SENTRON circuit-breakers, multifunction measuring instruments and power meters, as well as medium-voltage protective equipment such as SIPROTEC. The existing measuring instruments with standardized interfaces (e.g. S0 interface, 20 mA, 10 V, PT100) can also be used of course.

Using a bus system such as PROFIBUS the data are passed to the preprocessing level, preprocessed, standardized and equipped with a time stamp. This information is temporarily stored for up to one week. The operating and monitoring level indicates the system status as well as the measured values in diagram or list form and the parameterization of all relevant values. Needless to say, this information is also archived in cyclic mode.

Planning, Design and Management

Notes

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