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SIPROTEC 7SK85

Motor Protection

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Description

The SIPROTEC 7SK85 motor protection device is designed for the protection of motors of all sizes. With its modular structure, flexibility and the powerful DIGSI 5 engineering tool, SIPROTEC 7SK85 offers future-oriented system solutions with high investment security and low operating costs. For motors in explosive environments, the SIPROTEC 7SK85 is also available with EN 60079-14 or Verband der Elektrotechnik, Elektronik und Informationstechnik 0165, Part 1 (ATEX) certification.

* Currently under development

Main function	Motor protection for motors of all sizes
Inputs and outputs	3 predefined standard variants with 4 current transformers, 4 voltage transformers, 11 to 27 binary inputs, 9 to 17 binary outputs
Hardware flexibility	Flexibly adjustable and expandable I/O quantity structure within the scope of the modular SIPROTEC 5 system. 1/6 expansion modules can be added, available with large or small display, or without display
Housing width	1/3 × 19 inch to 2/1 × 19 inch

Applications

- Protection against thermal overload of the stator from overcurrent, cooling problems or pollution
- Protection against thermal overload of the rotor during startup due to: Frequent startups, excessively long startups or blocked rotor
- Monitoring for voltage unbalance or phase outage
- Monitoring the thermal state and the bearing temperatures with temperature measurement



SIPROTEC 5 Device with Expansion Module

- Detection of idling drives of pumps and compressors, for example
- Detection of ground faults in the motor
- Protection against motor short circuits
- Protection against instability due to undervoltage.

Functions

- DIGSI 5 permits all functions to be configured and combined as required.
- Motor protection functions: Startup time monitoring, thermal overload protection for stator and rotor, re-start inhibit, unbalanced-load protection, load-jam protection
- Stator and bearing temperature monitoring via temperature sensors with external RTD unit.
- Differential motor protection as fast short-circuit protection for motors of high power
- Sensitive ground-fault protection (non-directional, directional) to detect stator ground faults

Modular and efficient

- (shortcircuit protection) with additional functions
- Detection of ground faults of any type in compensated or isolated electrical power systems using the following functions: $3I_0$, V_0 , fleeting contact, $\cos \phi$, $\sin \phi$, harmonic, dir.
- Detection of intermittent ground faults and admittance
- Ground fault detection using the pulse detection method
- Overvoltage and undervoltage protection
- Arc protection
- Power protection, configurable as active or reactive power protection
- Detection of current and voltage signals up to the 50th harmonic with high accuracy for selected protection functions (such as thermal overload protection) and operational measured values
- Control, synchrocheck and switchgear interlocking protection
- Graphical logic editor to create powerful automation functions in the device
- Integrated electrical Ethernet RJ45 for DIGSI 5 and IEC 61850 (reporting and GOOSE)
- Up to 4 pluggable communication modules, usable for different and redundant protocols (IEC 61850, IEC 60870-5-103, IEC 60870-5-104, Modbus TCP, DNP3 serial and TCP, PROFINET IO)
- Reliable data transmission via PRP and HSR redundancy protocols
- Extensive cyber security functionality, such as role-based access control (RBAC), protocolling security-related events or signed firmware
- Simple, quick and secure access to device data via a standard Web browser - without additional software
- Secure serial protection data communication, also over great distances and all available physical media (optical fiber, two wire connections and communication networks)
- Capturing operational measured variables and protection function measured values for the evaluation of the systems, to support commissioning, and to analyze faults
- Synchrophasor measured values with the IEEE C37.118 protocol integrated (PMU)
- Powerful fault recording (buffer for a max. record time of 80 sec. at 8 kHz or 320 sec. at 2 kHz)
- Auxiliary functions for simple tests and commissioning
- Flexibly adjustable I/O quantity structure within the scope of the SIPROTEC 5 modular system

Benefits

- Safety due to powerful protection functions
- Data security and transparency over the entire lifecycle of the plant, saving time and money
- Increased reliability and quality of the engineering process
- Cyber security in accordance with NERC CIP and BDEW Whitepaper requirements
- Highest availability even under extreme environmental conditions by "conformal coating" of electronic boards
- Full compatibility between IEC 61850 Editions 1 and 2



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For all products using security features of OpenSSL, the following shall apply:

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (www.openssl.org), cryptographic software written by Eric Young (eay@cryptsoft.com) and software developed by Bodo Moeller.