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SIPROTEC 7SK82

Motor Protection

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Description

The SIPROTEC 7SK82 motor protection has been designed particularly for a cost-optimized and compact utilization of small to medium-sized motors. With its flexibility and the powerful DIGSI 5 engineering tool, SIPROTEC 7SK82 offers future-oriented system solutions with high investment security and low operating costs. For motors in explosive environments, the SIPROTEC 7SK82 is also available with EN 60079-14 or Verband der Elektrotechnik, Elektronik und Informationstechnik 0165, Part 1 (ATEX) certification.

Main function	Motor protection for small to medium-sized motors (100 kW to 2 MW)
Inputs and outputs	4 current transformers, 4 voltage transformers (optional), 11 or 23 binary inputs, 9 or 16 binary outputs
Hardware flexibility	Different hardware quantity structures for binary inputs and outputs are available in the 1/3 base module. Adding 1/6 expansion modules is not possible; available with large or small display
Housing width	1/3 × 19 inches

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
- Detection of idling drives of pumps and compressors, for example



SIPROTEC 7SK82 Motor Protection

- Detection of ground faults in the motor
- Protection against motor short circuits and 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, restart inhibit, unbalanced-load protection, load-jam protection
- Stator and bearing temperature monitoring via temperature sensors with optional temperature inputs or with external RTD unit.
- Sensitive ground-fault protection (non-directional, directional) to detect stator ground faults
- Directional and non-directional overcurrent protection (shortcircuit protection) with additional functions
- Detection of ground faults of any type in compensated or isolated electrical power systems using the following functions: 3I0>, V0>, fleeting contact, $\cos \phi$, $\sin \phi$, harmonic, dir.

Safe and efficient

- 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
- Single line representation in small or large display
- Integrated electrical Ethernet RJ45 for DIGSI 5 and IEC 61850 (reporting and GOOSE)
- 2 optional 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
- Integrated RTD inputs (optional) for thermal motor monitoring
- Phasor measurement unit (PMU) for synchrophasor measured values and IEEE C37.118 protocol
- 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.

Benefits

- Compact and low-cost motor protection
- Safety due to powerful protection functions
- Data security and transparency over the entire lifecycle of the plant, saving time and money
- Purposeful and easy handling of devices and software thanks to a user-friendly design
- 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 (ey@cryptsoft.com) and software developed by Bodo Moeller.