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SIPROTEC 7KE85

Fault Recorder

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Description

Powerful fault recorders with integrated measurement of synchrophasors (PMU) in accordance with IEEE C37.118 and power quality measurement in accordance with IEC 61000-4-30. Due to the great flexibility of trigger functions, the SIPROTEC 7KE85 is ideally suited for monitoring the entire energy value added chain, from generation to distribution. The powerful automation and flexible configuration with DIGSI 5 complements the range of functions.

Main function	Fault Recorder
Inputs and outputs	4 predefined standard variants with up to 40 analog channels, 43 binary inputs, 33 binary outputs
Hardware flexibility	Flexibly adjustable and expandable I/O quantity structure within the scope of the SIPROTEC 5 modular system
Housing width	1/3 to 1/1 x 19"

Applications

- Detection and selective 3-pole tripping of short circuits in electrical equipment of star networks, lines with infeed at one or two ends, parallel lines and open-circuited or closed ring systems of all voltage levels
- Detection of ground faults in isolated or arc-suppression-coilground power systems in star, ring, or meshed arrangement
- Protection data communication over different distances and physical media, such as optical fiber, two-wire connections, and communication networks
- Backup protection for differential protection devices of all kind for lines, transformers, generators, motors, and busbars



SIPROTEC 7KE85 Device with Expansion Module

- Phasor Measurement Unit (PMU)

Functions

DIGSI 5 permits all functions to be configured and combined as required.

- Up to 40 analog channels
- Fast-Scan Recorder
- Up to 2 slow-scan recorders
- Up to 5 continuous recorders and 2 trend recorders
- Power quality recordings in accordance with IEC 61000-4-30
- Sequence-of-events recorder for continuous recording of binary status changes and IEC 61850 GOOSE messages
- Usable as Phasor Measurement Unit (PMU) in accordance with IEEE C37.118 protocol
- Transmission of the records and triggering via IEC 61850 GOOSE messages
- Distribution of the mass storage of 16 GB to the various recorders by the user as desired

Efficient and modular

- Intelligent monitoring routines of the storage medium ensure a high level of availability and completeness for the archived data
- Lossless data compression
- Time synchronization via PTP Protocol IEEE 1588 protocol, IRIG-B, DCF77, and SNTP
- Routing of the measured values to the individual recorders as desired
- Combination of the measuring groups for the power calculation as desired
- Quality attributes for representing the instantaneous signal quality in the time signal view
- Trigger functions of a function block are fundamental component value, RMS value, zero-sequence, positive-sequence, negative-sequence system power, frequency power, Σ active power, Σ reactive power and Σ apparent power
- Level trigger and gradient trigger for every trigger function
- Flexible cross trigger and system trigger, manual trigger
Creation of independent trigger functions with the graphic automation editor CFC (continuous function chart)
- Trigger functions via a combination of single-point, doublepoint indications, analog values, binary signals, Boolean signals and GOOSE messages
- Consistent monitoring concept
- Auxiliary functions for simple tests and commissioning
- Special test mode for commissioning
- Integrated electrical Ethernet RJ45 for DIGSI 5 and IEC 61850 (reporting and GOOSE)
- Data transmission over IEC 61850 of fault messages in accordance with COMTRADE 2013, 1999 standard and continuous recording in accordance with IEEE Std 1159.3-2003
- 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
- Up to 4 pluggable communication modules usable for different and redundant protocols
- Intelligent terminal technology enables prewiring and a simple device replacement

Benefits

- Clearly organized documentation and focused analysis of power system processes and failures
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
- Powerful communication components warrant safe and effective solutions
- Full compatibility between IEC 61850 Editions 1 and 2
- Siemens supports the interface in accordance with IEC 61850-9-2 for process bus solutions
- Highest availability even under extreme environmental conditions by “conformal coating” of electronic boards



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SIPROTEC 7KE85 Profile V7.8.docx
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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.