

# SIEMENS

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## SIPROTEC 7KE85

Fault Recorder

[www.siemens.com/siprotec](http://www.siemens.com/siprotec)

### Description

Powerful fault recorders with integrated measurement of synchrophasors (PMU) according to IEEE C37.118 and power quality measurement according to 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 current transformers and 40 voltage transformers, 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"

### Application Areas

The fault recorder is for use in medium, high and extra-high voltage systems and in power plants with comprehensive trigger and recording functions. With the fault recorder SIPROTEC 7KE85, you receive a clearly organized and event-related evaluation and documentation of your power system processes. You are thereby able to analyze failures in a targeted manner and optimize your power system.

Typical processes to be monitored and documented:

- System incidents, such as critical load cases or short circuits
- Failures of the quality of supply
- Dynamic behavior of generators



Fault recorder SIPROTEC 7KE85 (1/3 device with 1/6 expansion module and LED indications)

- Closing and breaking operations of transformers (saturation response)
- Power fluctuations and power-swing cycles
- Test runs during commissioning

### 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 according to IEC 61000-4-30 (harmonics, THD, TDD - in preparation)
- Sequence-of-events recorder for continuous recording of binary status changes and IEC 61850 GOOSE messages
- Usable as Phasor Measurement Unit (PMU) according to IEEE C37.118 protocol

# Efficient and modular

- Transmission of the records and triggering via IEC 61850 GOOSE messages
- Variable sampling frequencies parameterizable between 1 kHz and 16 kHz
- Distribution of the mass storage of 16 GB to the various recorders by the user as desired
- Intelligent monitoring routines of the storage medium ensure a high level of availability and integrity for archived data
- Lossless data compression
- Time synchronization via Precision Time Protocol (PTP) 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 via a combination of single-point, doublepoint indications, analog values, binary signals, Boolean signals and GOOSE messages
- 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)
- Redundancy protocols PRP and HSR
- Cyber security in accordance with NERC CIP and BDWE Whitepaper requirements

## Benefits

- Clearly organized documentation and focused analysis of power system processes and failures
- Data security and transparency over the entire lifecycle of the plant save time and money
- Purposeful and simple operation of the devices and software thanks to user-friendly design
- Increased reliability and quality of the engineering process
- Powerful communication components ensure secure and effective solutions
- Full compatibility between IEC 61850 Editions 1 and 2
- Highly available Ethernet communication due to integrated Ethernet redundancy protocols PRP and HSR



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