

SIEMENS

Ingenuity for life

SIPROTEC 7SJ82

Feeder and overcurrent protection

www.siemens.com/siprotec

Description

The SIPROTEC 7SJ82 overcurrent protection has specifically been designed for a cost-effective and compact protection of feeders and lines in medium-voltage and high-voltage systems. With its flexibility and the powerful DIGSI 5 engineering tool, the SIPROTEC 7SJ82 device offers future-oriented system solutions with high investment security and low operating costs.

Main function	Feeder and overcurrent protection for all voltage levels
Inputs and outputs	4 current transformers, 4 voltage transformers (optional), 11 or 23 binary inputs, 9 or 16 binary outputs, or 8 current transformers, 7 binary inputs, 7 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

- 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 or closed ring systems of all voltage levels
- Detection of ground faults in isolated or arc-suppression-coil-ground power systems in star, ring, or meshed arrangement
- Backup protection for differential protection devices of all kind for lines, transformers, generators, motors and busbars



Feeder and overcurrent protection SIPROTEC 7SJ82

- Protection and monitoring of simple capacitor banks
- Phasor Measurement Unit (PMU)
- Reverse-power protection
- Load shedding applications
- Automatic switchover

Functions

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

- Directional and non-directional overcurrent protection with additional functions
- Optimized tripping times due to directional comparison and protection data communication
- Detection of ground faults of any type in isolated or arc-suppression-coil-ground systems using the following functions: 3I0>, V0>, fleeting contact, Cos-/SinPhi, harmonic, dir. detection of intermittent ground faults and admittance

Compact and flexible

- Ground fault detection using the pulse location method
- Arc protection
- Overvoltage and undervoltage protection
- Frequency protection and frequency change protection for load shedding applications
- Automatic frequency relief for load shedding in case of underfrequency, taking account of changed infeed conditions due to decentralized power generation
- Power protection, configurable as active or reactive power protection
- Protection functions for capacitor banks, such as overcurrent, overload, current unbalance, peak overvoltage or differential protection
- Reactive power-undervoltage protection (QU protection)
- Control, synchrocheck and switchgear interlocking protection, circuit-breaker failure protection
- Circuit-breaker failure protection
- Circuit-breaker reignition monitoring
- Graphical logic editor to create powerful automation functions in the device
- Detection of current and voltage signals up to the 50th harmonic with high accuracy for selected protection functions (such as peak overvoltage protection for capacitors) and operational measured values
- 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)
- Serial protection data communication via optical fibers, two-wire connections and communication networks (IEEE C37.94, and others), including automatic switchover between ring and chain topology
- Redundancy protocols PRP and HSR
- Cyber security to NERC CIP and BDWE Whitepaper requirements
- Whitepaper Phasor Measurement Unit (PMU) for synchrophasor measured values and IEEE C37.118 protocol
- Time synchronization using IEEE 1588
- Powerful fault recording (buffer for a max. record time of 80 sec. at 8 kHz or 320 sec. at 2 kHz)
- Auxiliary functions for easy tests and commissioning

Benefits

- Compact and low-cost overcurrent protection
- Safety due to powerful protection functions
- 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 a user-friendly design
- Increased reliability and quality of the engineering process
- High safety due to a consistent implementation of safety and security
- Powerful communication components ensure safe and effective solutions
- Full compatibility between IEC 61850 Editions 1 and 2



Siemens AG

Energy Management Division
Freyeslebenstraße 1
91058 Erlangen, Germany

SIPROTEC 7SJ82 Profile E7.5.docx
Printed in Germany | © 09.17 Siemens AG

E-Mail: support.energy@siemens.com
Tel: +49 180 524 70 00

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.