



## UNIVERSAL PROTECTION DEVICE

# SIPROTEC 5 COMPACT – 7SX800

From Siemens | for the Future | for You

### Description

SIPROTEC 7SX800 is a universal, compact protection device that is part of the SIPROTEC 5 device series. As a universal device it helps you in optimizing your device variants and the associated training and spare-parts costs.

It has been specifically developed for the efficient and compact protection of feeders, lines, and motors in medium-voltage systems. It covers the most diverse protection, automation, and monitoring applications with its modular functional scope. Its high levels of performance and the comprehensive library of functions enhance the field of application up to high-voltage applications.

The new universal device provides the possibility to connect a large number of inputs and outputs within a very small space and has a comprehensive library of protection functions that you can easily activate for your application using function points.

SIPROTEC 7SX800 already features future-proof functions today. Virtual testing with SIPROTEC DigitalTwin considerably cuts the testing and fault analysis times. IoT connectivity is required to provide simple access to your device data and quick response times. The integrated cybersecurity functions comprehensively protect your device and support the maximum availability of your power system.

Based on the SIPROTEC 5 platform and the powerful DIGSI 5 engineering tool, the range of functions and thus the possible applications of the SIPROTEC 7SX800 are being continuously expanded. Future-proof system solutions, high investment security and low operating costs - that's what SIPROTEC 7SX800 stands for.

### Functions

- Directional and non-directional overcurrent protection with additional functions
- Detection of ground faults of any type in compensated or isolated electrical power systems using the following functions: 3I0>, V0>, transient ground fault,  $\cos \varphi$ ,

Main function	<ul style="list-style-type: none"> <li>• Feeder and overcurrent protection for all voltage levels</li> <li>• Motor protection for small to medium-sized motors (100 kW to 2 MW)</li> <li>• Voltage and frequency protection</li> </ul>
Inputs and outputs	4 current transformers, 4 voltage transformers (optional), 4 or 14 binary inputs, 5 or 11 binary outputs
Housing width	1/6 × 19 inches

$\sin \varphi$ , harmonic detection, dir. detection of intermittent ground faults, and admittance

- Optimized operate times thanks to directional comparison
- Motor protection functions: Startup time supervision, thermal overload protection for stator and rotor, restart inhibit, unbalanced-load protection, load-jam protection
- Stator and bearing-temperature monitoring via temperature sensors with external RTD unit
- Sensitive ground-fault protection (directional, non-directional) to detect stator ground faults
- Controlled automatic reclosing of overhead line sections
- Overvoltage and undervoltage protection
- Frequency protection and rate of frequency change protection for load-shedding applications
- Underfrequency load shedding in case of underfrequency, taking into consideration changed in-feed conditions due to decentralized power generation

# UNIVERSAL PROTECTION DEVICE TRENDSETTING, ECONOMIC COMPACT

- Power protection, configurable as active or reactive-power protection
- PQ – Basic: Voltage unbalance; voltage changes: Over-voltage, dip, interruptions; TDD, THD, and harmonics
- Directional reactive power undervoltage protection (QU protection)
- Control, synchrocheck, and switchgear interlocking protection
- Circuit-breaker failure protection and reignition monitoring
- Graphical logic editor
- Single-line representation
- Monitoring for voltage unbalance or phase outage
- Monitoring the thermal state and the storage temperatures with temperature measurement
- Detection of idling drives of pumps and compressors, for example
- Detection of ground faults and short circuits in the motor
- Protection against instability due to undervoltage
- Detection and recording of power-quality data in the medium voltage and subordinate low-voltage power system
- Load-shedding applications
- Retrofit

## Applications

- Detection and selective 3-pole tripping of short circuits in electrical equipment of star networks, lines with in-feed 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
- Backup protection for differential protection devices of all kind for lines, transformers, generators, motors, and busbars
- Protection and interfacing of regenerative infeeds
- Protection and monitoring of double-star point capacitor banks
- Protection against thermal overload of the stator from overcurrent, cooling problems, or pollution and of the rotor during startup due to frequent startups, excessively long startups, or blocked rotor

## Benefits

- Compact and cost-effective universal protection device for a wide range of applications
- Safety thanks to powerful as well as tried-and-tested protection functions
- Simple operation thanks to graphical color display including single-line representation
- Intuitive device operation using Web UI
- Cybersecurity in accordance with NERC CIP and BDEW Whitepaper requirements (for example, logging security-related events and alarms) available as standard
- Full compatibility between IEC 61850 Editions 1, 2.0, and 2.1



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