

**SIEMENS**



# SIPROTEC 5 Compact Properties and Functional Structure

APN – C.001

# SIPROTEC 5 Compact Application

Properties and Functional Structure

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## SIPROTEC 5 Compact Application

# Properties and Functional Structure

APN-C.001, Edition 1

## Content

1	Properties and Functional Structure.....	3
1.1	Introduction .....	3
1.2	General Properties .....	3
1.3	Universal Concept.....	3
1.4	Conclusion .....	4

## 1 Properties and Functional Structure

### 1.1 Introduction

The SIPROTEC 5 Compact devices at the bay level are compact and can be installed directly in medium- and high-voltage switchgears. In combination with the terminals for low voltage connection it is even possible to connect the SIPROTEC 5 Compact relays directly to the 400 V of Low voltage switchgears.

They are characterized by comprehensive integration of protection and control functions.

### 1.2 General Properties

- Powerful multiprocessor
- Robust housing
- Very high density of binary -outputs -inputs in a 1/6 x 19"- housing
- Wide-range universal power supply
- Graphical color-display
- Removable modular terminal blocks offering the possibility of prewiring
- Custom-fit migration of legacy 7SJ500 and 7SJ600/601/602 and 7SJ80 relays
- Fully digital measured-value processing and control, from sampling and digitizing of measurands to closing and tripping decisions for the circuit breaker
- Complete galvanic and interference-free isolation of the internal processing circuits from the system measuring, control, and supply circuits through instrument transformers, binary input and output modules, and DC and AC voltage converters
- Easy operation using an integrated operator and display panel, or using a connected PC via DIGSI 5 or simply via the integrated Web browser
- Continuous display of measured and metered values at the front
- Storage of min/max measured values (slave pointer function) and storage of long-term mean values
- Failsafe storage of fault indications for system incidents (faults in system) with real-time assignment and instantaneous values for fault recording
- Continuous monitoring of the measurands as well as of the device hardware and software
- Communication with central control and storage devices possible via the device interface
- Battery-buffered, synchronizable clock

### 1.3 Universal Concept

You can use with our new 7SX800 universal relay the full power of the SIPROTEC 5 system platform. One device type covers all protection-, control- and automation- functions available for the SIPROTEC 5 Compact system family.

- Select the fitting device hardware variant of your SIPROTEC 7SX800 basic relays from the hardware catalog (considerably reduced number of variants compared to SIPROTEC 5)
- Select from the large assortment of the SIPROTEC 5 function library the needed protection function and easily load them with our powerful DIGSI 5 configuration and setting tool per drag & drop in your 7SX800 device. Functional integration of various applications, such as protection, control, and fault recorder

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- All current based functions are enabled with the device hardware without extra costs. Voltage based functions and special functions like motor protection can be easily added via function point upgrade.
- Redundant Ethernet- and additional one serial- communication interface is always on board
- Redundant communication (for Ethernet based protocols like IEC61850) to a Substation controller or SCADA possible
- Time synchronization via SNTP (IEEE 1588 and IRIG-B in preparation)
- Future- and investment proof: The complete range of SIPROTEC 5 cyber security features like role-based access control (RBAC) are always integrated and can be activated whenever needed
- Configuration with DIGSI 5: DIGSI 5 Compact for configuration of up to 8 x 7SX800 devices per project is free of charge
- Evaluation, test, and adaptation of settings during operation via an integrated Web-Server (SIPROTEC 5 Web-UI)
- IoT cloud connection via SICAM GridEdge and Evaluation via SIPROTEC Dashboard
- Innovative terminal technology with easy assembly and interchangeability and the highest possible degree of safety
- The same functions can be configured individually across the entire family of devices
- At all times the ability to bring innovations into your 7SX800 from the large function library
- Open, scalable architecture for IT integration and new functions
- Multi-layered security mechanisms in all levels of the security chain
- Self-monitoring routines for reliable localization and indication of device faults
- Automatic logging of access attempts and safety-critical operations on the devices and systems

## 1.4 Conclusion

Generations of Siemens protection experts have been designing and manufacturing SIPROTEC from before the dawn of the digital age, with each device packed full of technology and passion. All this experience has been incorporated into the development of our new SIPROTEC 5 Compact series.

Due to its modularity and the conductible engineering tool DIGSI 5, the range of functions and thus the application possibilities of the SIPROTEC 7SX800 are continuously expanded. Future-proof system solutions, high investment security and low operating costs, this is what SIPROTEC 7SX800 stands for.

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