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SIPROTEC 7UM85

Generator protection

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Description

The SIPROTEC 7UM85 generator protection device has been designed specifically for the protection of generators and power plant units. It contains all necessary main protection functions and a large number of other protection and monitoring functions. With its modular structure, flexibility and the powerful DIGSI 5 engineering tool, SIPROTEC 7UM85 offers futureoriented system solutions with high investment security and lowoperating costs.

Main function	Typical generator protection functions
Inputs and outputs	5 predefined standard variants with up to 16 current transformers and 8 voltage transformers, 7 to 15 binary inputs, 9 to 20 binary outputs 4 fast measuring transducer inputs (10 V or 20 mA)
Hardware flexibility	Flexibility adjustable and expandable I/O quantity structure within the scope of the modular SIPROTEC 5 system; 1/6 expansion modules can be added, available with large or small display, or without display
Housing width	1/3 × 19 inches to 2 × 19 inches

Applications

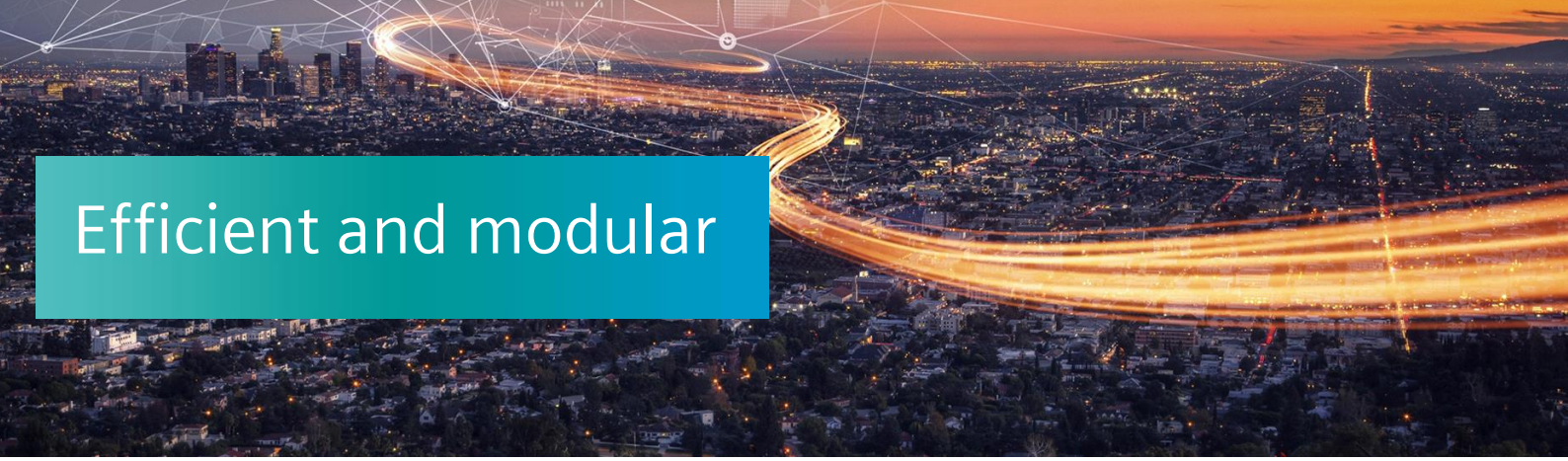
- Protection of generators in busbar connection of different power, with directional stator ground-fault protection.
- Protection of generators in unit connection of different power (using the 100% stator ground fault (20 Hz) with larger generators)
- Protection of power plant units with one device per protection group. In the generator transformer variant, the 7UM85 implements both generator and transformer protection.
- In more complex power plant units (unit connection with generator circuit breaker and several auxiliary transformers), additional SIPROTEC 5 devices are used, - for example, 7UT8x, 7SJ82 or 7SJ85 and 7SA, SD, SL86, at the uppervoltage side of the generator transformer.
- Using motor and generator protection functions (underexcitation protection, for example) to protect synchronous motors

SIPROTEC 7UM85 Generator Protection (width: 1/3 x 19" to 2 x 19")

Functions

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

- Short-circuit protection (overcurrent protection, impedance protection, differential protection)



Efficient and modular

- Rotor ground-fault protection with different measuring methods (ground current or ground-resistance monitoring)
- High-precision reverse-power protection and universal power protection
- Underexcitation and overexcitation protection
- Unbalanced-Load Protection
- Overload protection and temperature supervision via external RTD unit (with PT 100, for example)
- Out-of-Step Protection
- Rotor and stator overload protection with cold gas consideration (coolant temperature)
- Power-plant disconnection protection
- Shaft-current protection (in particular with hydropower applications)
- Universal overvoltage and undervoltage protection with different measuring methods
- Overfrequency and underfrequency protection, frequency change protection and monitoring of dwell time in frequency bands as turbine protection (protection against abnormal frequencies)
- Protection functions for network decoupling (voltage and frequency protection, directional reactive power undervoltage protection (QU protection) and vector-jump protection)
- Inadvertent energization protection to detect incorrect activation of the circuit breaker
- Circuit-breaker failure protection andreignition monitoring
- Single-channel parallel connection function (synchronization) with adjustment commands for rotational speed (frequency) and voltage
- Graphical logic editor to create powerful automation functions in the device
- Integrated electrical Ethernet RJ45 for DIGSI 5 and IEC 61850 (reporting and GOOSE) and 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)
- 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
- Time synchronization using IEEE 1588
- Frequency tracked protection functions over a wide frequency range (10 Hz to 80 Hz) and the option to assign the protection functions in a single device to different frequency tracking groups.
- Powerful fault recording (buffer for a max. record time of 80 sec. at 8 kHz or 320 sec. at 2 kHz)
- Auxiliary functions for simple tests and commissioning
- Flexibly adjustable I/O quantity structure within the scope of the SIPROTEC 5 modular system

Benefits

- Safe and reliable automation and control of your systems
- Highest availability even under extreme environmental conditions by “conformal coating” of electronic boards
- High investment security and low operating costs due to future-oriented system solutions

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