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SIPROTEC 7UT86

Transformer Differential Protection

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Description

The SIPROTEC 7UT86 transformer differential protection has been designed specifically for the protection of three-winding transformers (3 sides). It is the main protection for the transformer and contains many other protection and monitoring functions. The additional protection functions can also be used as backup protection for protected downstream objects (such as cables, line). In this process, you are also supported by the modular expandability of the hardware. The device supports all SIPROTEC 5 system properties. It enables future-oriented system solutions with high investment security and low operating costs. With its modular structure, flexibility and the powerful DIGSI 5 engineering tool, SIPROTEC 7UT86 offers future-oriented system solutions with high investment security and low operating costs.

Main function	1 differential protection function (standard) with additional stabilization; up to 3 ground fault differential protection functions For auto transformer applications, two differential protection functions can be processed in an Auto transformer function group
Usable measuring points	6 x 3-phase current measuring points, 4 x 1-phase current measuring points, 4 x 3-phase voltage measuring points; expandable to 4 sides
Inputs and outputs	2 predefined standard variants with 12 current transformers, 4 voltage transformers, 11 to 23 binary inputs, 18 to 34 binary outputs
Hardware flexibility	Flexibly adjustable and expandable I/O quantity structure within the scope of the SIPROTEC 5 modular system
Housing width	1/2 × 19" - 2/1 × 19"

SIPROTEC 7UT86

Benefits

- 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 user-friendly design
- Increased reliability and quality of the engineering process
- Consistent implementation of high safety and security mechanisms
- Powerful communication components ensure safe 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

Modular and flexible

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

- Transformer differential protection for three-winding transformers with versatile, additional protection functions; expandable to four-winding transformers
- Transformer differential protection for phase-angle regulating transformers of the single core type and special transformers
- Universal usability of the permissible measuring points
- Applicable from average up to extra-high voltage
- Protection of standard power transformers, auto transformers and motors
- Typical properties of a transformer differential protection such as flexible adaptation to the transformer vector group, control of inrush and overexcitation processes, safe behavior in the case of current-transformer saturation with different degrees of saturation
- Adaptive adaptation of the operate curve to the transformer tap position
- Increased sensitivity with near-neutral-point ground faults through a separate ground fault differential protection
- Additional current and voltage inputs can be supplements for standard protection functions, such as overcurrent, voltage frequency, etc.
- Graphical logic editor to create powerful automation functions in the device
- Arc protection
- Voltage controller function ANSI 90V for two-winding transformers, three-winding transformers and grid coupling transformers
- Up to 4 pluggable communication modules, usable for different and redundant protocols (IEC 61850, IEC 60870-5-103, IEC 60870-5-104, DNP3 (serial and TCP), Modbus TCP, PROFINET IO)
- Redundancy protocols PRP and HSR
- Cyber security in accordance with NERC CIP and BDWE Whitepaper requirements
- Secure serial protection data communication, also over great distances and all available physical media (fiber-optic cable, 2-wire connections and communication networks)
- Capturing operational measured variables and protection function measured values to evaluate the plant state, to support commissioning, and to analyze faults
- Phasor measurement unit (PMU) for synchrophasor measured values and IEEE C37.118 protocol
- Powerful fault recording (buffer for a max. record time of 80 s at 8 kHz or 320 s 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

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