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## SIPROTEC 7UT85

Transformer Differential Protection

[www.siemens.com/siprotec](http://www.siemens.com/siprotec)

### Description

The SIPROTEC 7UT85 transformer differential protection has been designed specifically for the protection of two-winding transformers (2 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. With its modular structure, flexibility and the powerful DIGSI 5 engineering tool, SIPROTEC 7UT85 offers future-oriented system solutions with high investment security and low operating costs.

Main function	1 differential protection function (standard or auto transformer) with additional stabilization; up to 2 ground fault differential protection functions
Usable measuring points	5 x 3-phase current measuring points, 3 x 1-phase current measuring points, 3 x 3-phase voltage measuring points; expandable to 3 sides
Inputs and outputs	2 predefined standard variants with 8 current transformers, 7 to 19 binary inputs, 7 to 23 binary outputs
Hardware flexibility	Flexibly adjustable and expandable I/O quantity structure within the scope of the SIPROTEC 5 modular system
Housing width	1/3 x 19" to 2/1 x 19"

### 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



SIPROTEC 7UT85

- 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

### Functions

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

- Transformer differential protection for two-winding transformers with versatile, additional protection functions; expandable to 3 windings

# Modular and flexible

- 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.
- Arc protection
- Voltage controller function ANSI 90V for two-winding transformers, three-winding transformers and grid coupling transformers
- Graphical logic editor to create powerful automation functions in the device
- 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



**Siemens AG 2016**  
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SIPROTEC 7UT85\_profile.docx  
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This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit ([www.openssl.org](http://www.openssl.org)) and cryptographic software written by Eric Young ([eay@cryptsoft.com](mailto:eay@cryptsoft.com)).