ENERGY AUTOMATION PRODUCTS

SIPROTEC 7RW80

Voltage and Frequency Protection

Description

The SIPROTEC 7RW80 is a numerical, multi-function relay for connection to voltage transformers. It can be used in distribution systems, on transformers and for electrical machines. If the SIPROTEC Compact 7RW80 detects any deviation from the permitted voltage, frequency or overexcitation values, it will respond according to the values set. The relay can also be applied for the purposes of system decoupling and for load shedding if ever there is a risk of a system collapse as a result of inadmissibly large frequency drops. An integrated load restoration function allows the re-establishment of the power system after recovery of the system frequency.

The SIPROTEC 7RW80 features "flexible protection functions". Up to 20 additional protection functions can be created by the user. For example, a rate of change of frequency function or a reverse power function can be created.

The relay provides circuit-breaker control, additional primary switching devices (grounding switches, transfer switches and isolating switches) can also be controlled from the relay. Automation or PLC logic functionality is also implemented in the relay.

The integrated programmable logic (CFC) allows the user to add own functions, e.g. for the automation of switchgear (including interlocking, transfer and load shedding schemes). The user is also allowed to generate user-defined messages. The communication module is independent from the protection. It can easily be exchanged or upgraded to future communication protocols.

Applications

Line protection
For the enhancement of the feeder protection the 7RW80 provides several stages for voltage and frequency protection.

Generator and transformer protection
Through implemented voltage, frequency and overexcitation protection the SIPROTEC 7RW80 can be used for generators and transformers in case of defective voltage or frequency control, full load rejection or operation in islanding generation systems.

Hardware

- 4 current transformers
- 0/3 voltage transformers
- 3/5/7 binary inputs (thresholds configurable using software)
- 5/8 binary outputs (2 changeover)
- 1 life contact
- Pluggable current and voltage terminals.

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Highlights

- Pluggable current and voltage terminals
- Binary input thresholds settable using DIGSI (3 stages)
- 9 programmable function keys
- 6-line display
- Buffer battery exchangeable from the front
- USB front port
- 2 additional communication ports
- Integrated switch for low-cost and redundant optical Ethernet rings
- Ethernet redundancy protocols RSTP, PRP and HSR for highest availability
- Relay-to-relay communication through Ethernet with IEC 61850 GOOSE
- Millisecond-accurate time synchronization through Ethernet with SNTP.

Functions

- Undervoltage/overvoltage protection (27/59)
- Rate-of-voltage-change protection (59N/27R/59R)
- Overfrequency/underfrequency protection (81O/U)
- Load restoration (81LR)
- Jump of voltage vector
- Overexcitation protection (24)
- Phase-sequence-voltage supervision (47)
- Synchrocheck (25)
- Rate-of-frequency-change protection (81R)
- Trip circuit supervision (74TC)
- Lockout (86)

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For the U.S. published
by Siemens Industry Inc.
100 Technology Drive
Alpharetta, GA 30005
United States

SIPROTEC 7RW80 Profile_04.2019