SIEMENS

ENERGY AUTOMATION PRODUCTS

Transformer protection
Reyrolle 7SR54

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The Reyrolle 7SR54 is a protective relay intended for transformer differential protection. It provides protection, control, and monitoring for transformers with 2- and 3-winding. This includes accommodating all transformer vector groups and earthing connections.

It features comprehensive protection functions, standard IEC 61850 Ethernet communications, adjustable input thresholds, and a universal power supply.

Highlights

$ Compact design and low product life-cycle cost

Combined 1 A and 5 A current transformer inputs

28 programmable tri-color LEDs for clear indications

Benefits

- Reliable operation due to powerful, proven protection algorithms
- IEC 61850 Edition 1 & 2, DNP3 TCP, Modbus TCP with HSR,PRP and RSTP operation for increased availability
- Role Based Access Control (RBAC)
- Simple product ordering
- User selectable languages: English, French, German, Portuguese, Spanish, Turkish, Italian
- Conformal coating ordering option

Inputs and Outputs	• Current inputs – 8 or 12 • Voltage inputs – 0 or 4 • Binary inputs (max) – 37 • Binary outputs (max) incl. Device healthy contact – 18 • Arc flash detector inputs (AFD) – 0 or 3 • Heavy duty binary outputs (HDBO) – 0 or 4 • High speed binary outputs (HSBO) – 0 or 3 • Temperature sensor inputs (TSI) – 0 or 8
Communication	Standard front USB port (for configuration using Reydisp Manager 2, a PC based software tool), rear RS485, 2 x RJ45 electrical ports or optional optical Ethernet connections
Housing	Size 8 or 12 with withdrawable design
Display	Backlit 128 x 128 LCD with text and graphical display capabilities suitable for single line mimic diagrams

Applications

- Comprehensive protection for 2- or 3-winding transformers
- Differential protection for auto-transformers, reactors and motors
- 81 frequency threshold and 81R rate of change of frequency (ROCOF) df/dt enables the relays to support load shedding and decoupling applications

Standard Functionality

- 37/37G Undercurrent protection – phase/earth
- 46 Negative sequence overcurrent protection
- 46BC Broken conductor detection
- 49 Thermal overload protection
- 49TS Temperature sensor supervision
- 50/50G/50N Instantaneous overcurrent/earth fault
- 50AFD Arc flash detection
- 50BF Circuit-breaker failure protection – 3-pole
- 51/51G/51N Time delayed overcurrent/earth fault
- 51CL Cold load overcurrent – phase
- 52 Circuit-breaker control
- 60CTS CT supervision
- 74CC/74TC Close-circuit and trip-circuit supervision
- 81HB2 Inrush current detection
- 81HB5 Overfluxing detection – 5th harmonic
- 86 Lockout
- 87GH Restricted earth fault protection – high-impedance
- 87NL Restricted earth fault protection – low-impedance
- 87T-BD Transformer differential protection – biased
- 87T-HS Transformer differential protection – highset

Security Features

- Signed firmware
- Encrypted connection between the device and PC tool
- Security logging
- Separate firmwares for protection and communication
- Secure access with password control
- Role based access control
- Encrypted WebUI access

Additional Functionality – Devices with VT Inputs

- 21LB Load blinder
- 24 Overexcitation protection
- 25 Synchrocheck – synchronizing function
- 27/27Vx Undervoltage protection
- 32 Power protection
- 47 Sequence overvoltage protection
- 51V Voltage dependent overcurrent – phase
- 55 Power factor
- 59/59Vx Overvoltage protection
- 59N Neutral voltage displacement
- 60VTS VT supervision
- 67/67G/67N Directional – phase/earth fault
- 78VS Voltage vector shift
- 81 Frequency protection – „f>" or „f<"
- 81R Frequency protection – „df/dt"

Monitoring Functions

- Primary, secondary, and phase sequence, current & voltage
- Frequency, power, energy and fault location
- Fault data, event and waveform records
- Event records (selectable events viewable on fascia)

Communication

- IEC 60870-5-103, DNP3, Modbus RTU, Modbus Client (for use with external TSI interface), IEC 61850, DNP3 TCP, Modbus TCP

↗ Virtual Relay Tool

↗ Configuration software - Reydisp Manager

↗ Webinar series - Reyrolle essentials

↗ Catalog Reyrolle 7SR5 Platform

↗ Online shop - Industry Mall