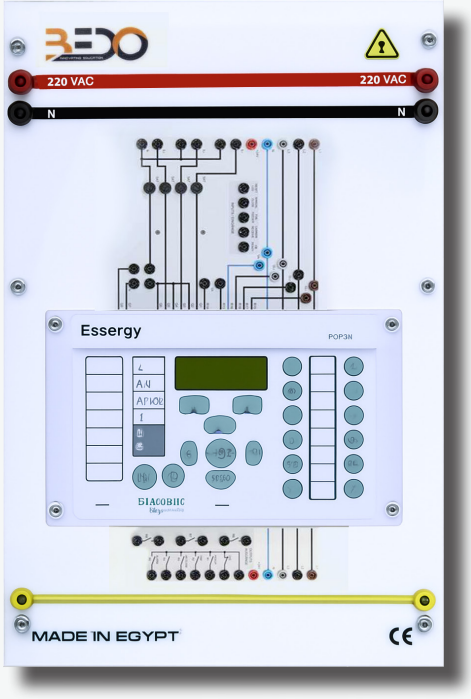
SG107

Feeder Differential Current Protection Relay

Overview

This protection relay is used specifically for protecting transmission lines. It is a numerical relay hence can be programmed through a dedicated software. The feeder differential protection algorithm shall be independently executed in the local and remote end relay according to the so called Master-Master principle. The relay communicates with identical numerical relay, placed at the remote end of transmission line, through a fiber optic link or a galvanic pilot wire connection.



Specifications

protection Features:

- The line differential protection function includes a stabilized low stage and an instantaneous high stage.
- The stabilized low stage provides sensitive differential protection and remains stable during, for example, current transformer saturation conditions.
- The low-stage operation can be restrained using second harmonic detection if an out-of-zone power transformer is to be energized.
- The instantaneous high stage offers less sensitive differential protection but enables fast operation during high fault currents.
- If there is an in-zone transformer in the protection zone, the vector group is automatically compensated based on

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the winding types and clock number setting values.

- The operating time characteristic for the low stage can be set to definite time or inverse definite time mode.
- The direct inter-trip function ensures that both ends are always simultaneously tripped, independent of the fault current contribution.

The relay offers the following protection functions:

- Two-stage phase-segregated line differential protection (ANSI: 87L) Phase overcurrent protection (ANSI: 50P / 51P) [Inverse Definite Minimum Time and Definite Time characteristics]
- Negative-sequence overcurrent protection (ANSI: 46)
- Circuit breaker failure protection (ANSI: 50BF)
- Thermal overload protection (ANSI: 49L)
- Phase Directional overcurrent protection (67P)
- Non-directional and Directional earth-fault protection (50G/51G /67N/67NC)
- Sensitive earth-fault protection (ANSI: 50G-TD)
- Residual overvoltage protection (ANSI: 59P)
- Over-frequency protection (ANSI: 81O)

Control Features:

- This numerical relay integrates functionality for the control of a circuit breaker via the front panel HMI or by means of remote controls. Further, the relay offers one control block which is intended for motoroperated control of one earthing switch control and its position indication. The relay contains three physical binary inputs and two physical binary outputs are needed in the relay for each controllable primary device taken into use.
  - » Circuit breaker control (ANSI: 52)
  - » Disconnector control (ANSI: 29DS)
  - » Disconnector position indication (ANSI: 52-TOC)
  - » Auto-reclosing (ANSI: 79)
  - » Synchronism and energizing check (ANSI: 25

Monitoring Features:

- The relay continuously measures the phase currents, the symmetrical components of the currents and the residual current. If the relay includes voltage measurements, it also measures the residual voltage. The relay also calculates the demand value of the current over a user-selectable, pre-set time frame, the thermal overload of the protected object, and the phase unbalance based on the ratio between the negative-sequence and positivesequence current. Furthermore, the relay monitors the phase differential, bias and remote-end phase currents. The values measured can be accessed locally via the user interface on the relay›s front panel or remotely via the communication interface of the relay.
  - » Three-phase current measurement
  - » Residual current measurement
  - » Three-phase voltage measurement
  - » Residual voltage measurement
  - » Sequence voltage measurement
  - » Single-phase power and energy measurement
  - » Three-phase power and energy measurement

Scope of Delivery

- Feeder Differential Current Protection Relay (SG107)
- Hard copy user manual
- BEDO Software

Options

- Digital content (BI01)

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