Protection Relay for Grounded or Ungrounded Schemes

Compact Feeder Multifunction solution for MV switchgear, with Load Shedding Function to ensure the stability of the system, Back-Up performing capability in HV lines and powerful built-in Control Logic Module.

50/51 Phase O/C.
50N/51N Neutral O/C.
50G/51G Ground O/C.
50Ns/51Ns Sensitive Ground O/C.
50Q/51Q Negative Sequence O/C.
51Ni/c Isolated / Compensated Neutral O/C.
67 Phase Directional Units.
67N Neutral Directional Units.
67G Ground Directional Units.
67P/Q Neg/Pos. Sequence Directional Units.
67Ns Sensitive Neutral Directional Units.
67Ni/c Isolated/Compensated Neutral Directional
85 Teleprotection Schemes.
50V/51V Voltage Dependent Phase O/C.
59/27 Phase Over/Under Voltage.
47 Negative Sequence Overvoltage.
59N Neutral Overvoltage.
81M/m Over/Underfrequency.
81ROC Frequency Rate of Change.
78 Out-of-Step Tripping.
59V/Hz Over-excitation Unit.
87N REF Protection.
50/62BF Breaker Failure Protection.
25 Synchronism Check Unit.
79 Three-Phase Recloser.
60CT/VT CT and VT Supervision.
3 Trip Coil Supervision.
2 Pole Discrepancy Detector.
32P/Q Directional Power (Active/Reactive).
46 Open Phase Detector.
37 Phase Undercurrent.
49 Thermal Image.
Application

IRL relay models provide Protection, Control and Measurement functions for a great range of applications: MV feeders, machine bays (motors, transformers and generators) or back-up in HV lines.

This device is suitable for systems where the neutral is rigidly connected to ground (including those with low impedance), or where the connection is done through a resistor or a Petersen coil and also for those where the neutral is isolated from the ground (ungrounded systems), featuring a long list of protection functions as shown in the diagram.

The highly dependable O/C units by means of a CT saturation detector and an algorithm based on instantaneous values increase the reliability of the relay.

The built-in control logic module allows the implementation of Load-Shedding Schemes typical in MV networks as well as any other kind of automatism like load transfer logic, etc.

Features

- Extended sampling rate: 4,800 Hz
- Enhanced recording capabilities: total oscil duration up to 100 s, up to 2,000 events and 25 fault reports.
- Compact and modular design
- High protection degree: IP54
- Multi-protocol: IEC61850 (native), DNP3, Modbus RTU and PROCOME.

Physical Description

1. **LEDs**: One (1) In Service LED and eight (8) configurable LEDs.
2. **Alphanumeric Display**: 128 x 64 matrix display.
3. **Keypad**: 7 push-buttons to control the information displayed, such as measures, events, fault indications, I/Os status, etc.
4. **Control Push Buttons**: 3 push-buttons to either control the breaker, change the active setting group or enable/disable any protection function or control automatisms.
5. **Local Communication Port**: 1 x USB front port for local communication with the relay.
6. **Slots A & B**: 24-pin terminal blocks for digital I/Os, transducer inputs, trip and close contacts and power supply connection.
7. **Slots C & D**: 10-ring lug terminal blocks for current and voltage inputs.
8. **Remote Communications Ports**: Serial (RS232/ RS485 or Glass FO-ST) and Ethernet (RJ45 or Multimode Glass FO-ST) (options available depending on model selection).