



SEL-547 Relay Guideform Specifications

Generator interconnect protection shall be provided by a microprocessor-based relay equipped with the following protection functions:

Over-/Undervoltage Protection. The relay shall have two (2) overvoltage elements (ANSI device 59) and two (2) undervoltage elements (ANSI device 27) for tripping for abnormal system voltage conditions. Each element shall have an independently set timer.

Over-/Underfrequency Protection. The relay shall have four (4) frequency elements (individually configurable as over- or underfrequency elements; ANSI device 81) for tripping for abnormal system frequency conditions. Each element shall have an independently set timer.

Reverse-Phase-Sequence Voltage Alarming. The relay shall have front-panel indication of reverse-phase-sequence voltage (ANSI device 47), indicating that the three-phase voltage inputs are wired incorrectly (or there is a wiring error somewhere in the system).

Directional Power Protection. The relay shall have one (1) directional power element (ANSI device 32) for tripping for such abnormal system conditions as reverse power and generator motoring. The directional power element shall derive its power operating quantity from single-phase voltage and current quantities. The element shall have an independent timer and be able to be set to detect forward or reverse power flow.

Synchronism Check Close Supervision. The relay shall have one (1) synchronism-check element (ANSI device 25) for system restoration supervision. Angle, voltage, and slip frequency settings shall provide for secure operation.

The relay shall have the following features:

Front-Panel LEDs. The relay shall have eight LEDs to indicate relay and protection/control element status. The LEDs shall have the facility to momentarily flash (if not already illuminated) at intervals from 5 to 60 seconds – indicating the working order of the LED.

Current and Voltage Inputs. The relay shall have three-phase (wye-connected) voltage inputs, one synchronism-check voltage input, and one single-phase current input

Inputs/Outputs. The relay shall include five (5) output contacts, one (1) alarm contact, and three (3) optoisolated inputs.

Access Levels. The relay shall be equipped with multiple access levels that are password protected.

Event Reporting and Sequential Events Recorder (SER). The relay shall have 15-cycle event reports, with per quarter cycle analog and digital information. The relay shall have a Sequential Events Recorder (SER) that shall record up to 512 time-stamped and dated sequential events.

Communication. The relay shall have two communication ports; one EIA-232 and one EIA-485. The relay shall support Modbus® protocol. Electronic communication to the relay shall not be restricted by proprietary software. The relay shall have the ability to communicate using ASCII commands issued from non-proprietary terminal emulators.

Extended Features. At a higher access level, the following features shall be available for custom scheme design: sixteen (16) timers, sixteen (16) latches, sixteen (16) remote control (via serial port) logic points, and two (2) settings groups. Extra elements become available at the higher access level, too: two (2) overvoltage elements, two (2) undervoltage element, two (2) frequency elements, one (1) synchronism check element, three (3) directional power elements, and some positive-, negative-, and zero-sequence voltage elements. The three (3) optoisolated inputs, five (5) output contacts, and seven (7) LEDs are programmable at this higher access level.

Operating Temperature and Specification Standards. The relay shall have an operating temperature range of -40° to +85°C and be qualified to UL and CSA standards.