



SEL-351A Distribution Protection System

Optimize Overcurrent Protection, Integration, and Automation



The SEL-351A Relay provides you with a competitive edge through lowered costs and enhanced features for integrated protection, monitoring, and control schemes.

Features and Benefits

■ Overcurrent Protection

Protect lines and equipment using a sensitive and secure mix of phase, negative-sequence, and ground overcurrent elements. Use directional control elements in looped systems. Provide high-speed operation, even with severe CT saturation, using the SEL Adaptive Overcurrent Element.

■ Control Logic and Integration

Program remote, local, and latch control switches, as well as the front-panel display, using SELogic® control equations.

■ Relay and Logic Settings Software

Use acSELEATOR® QuickSet™ SEL-5030 Software to reduce engineering costs for relay settings and logic programming. Use graphical tools included with acSELEATOR to develop SELogic control equations.

■ Accurate Metering and Monitoring

Use built-in, high-accuracy metering functions to eliminate expensive, separately mounted metering devices. Improve maintenance scheduling using circuit breaker contact wear and substation battery voltage monitors.

■ Sequential Events Report

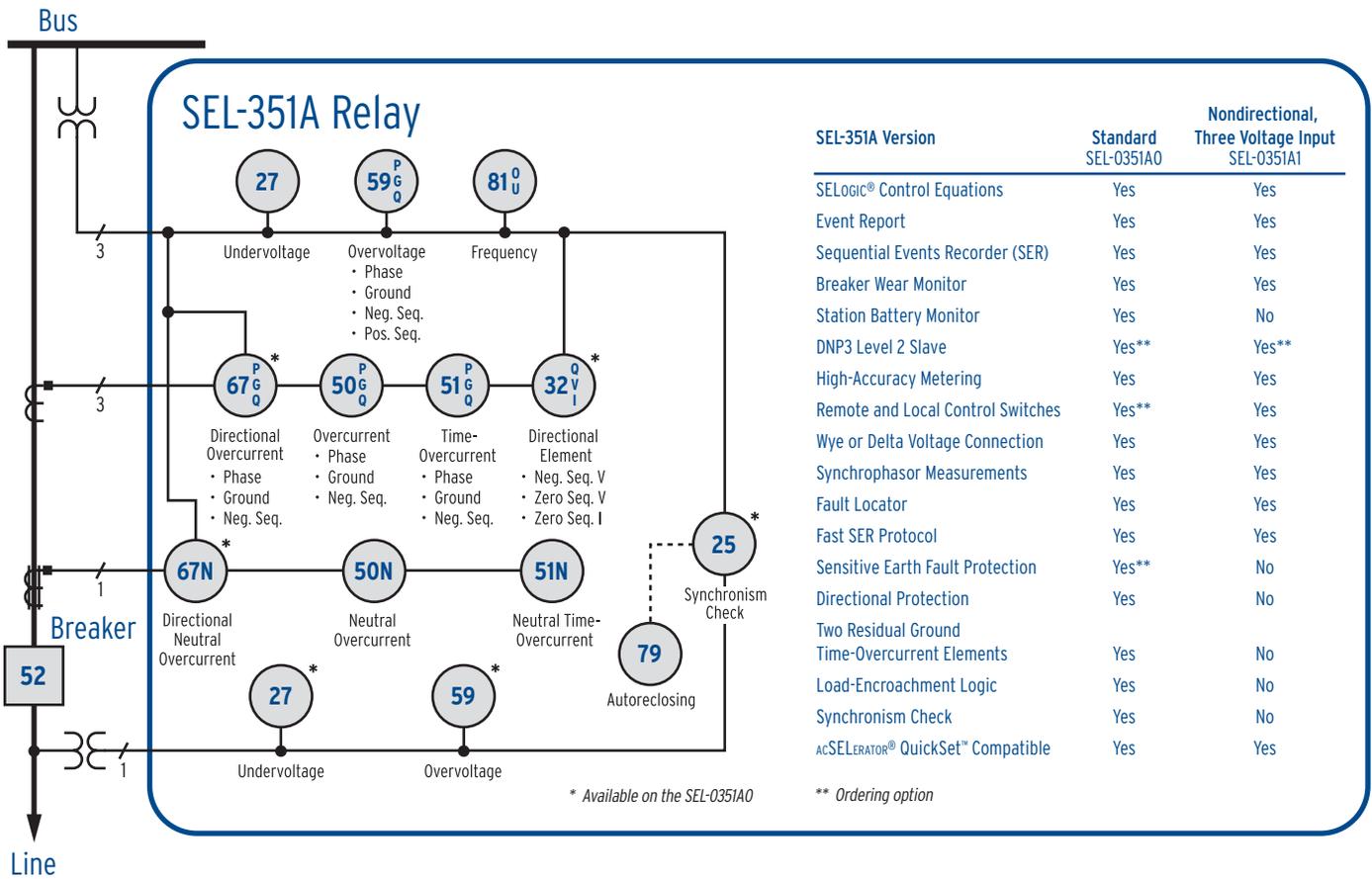
Analyze Sequential Events Recorder (SER) and oscillographic event reports for rapid commissioning, testing, and post-fault diagnostics.

■ Synchronized Phasor Measurement

Improve operator awareness of system conditions. Use real-time data to view load angles, improve analysis, and provide state measurements.

Making Electric Power Safer, More Reliable, and More Economical®

Functional Overview

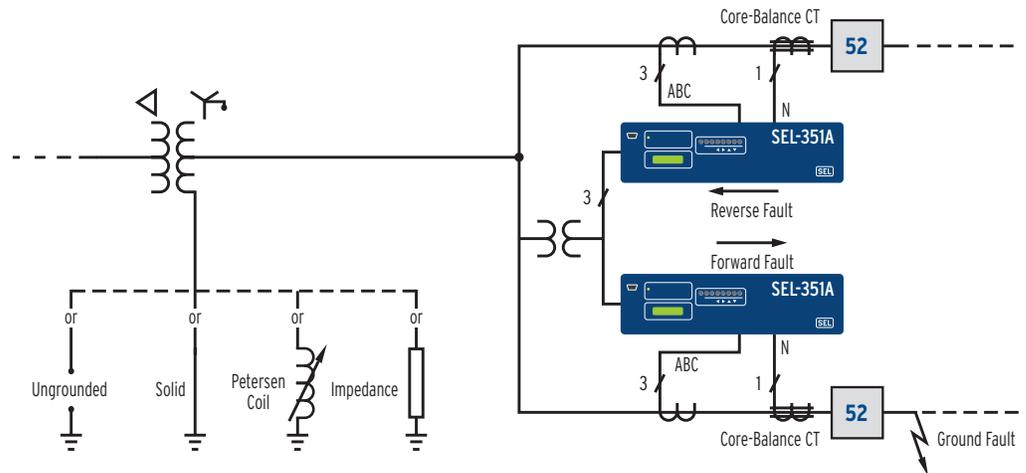


Maintain Sensitive Protection for a Wide Range of Ground Fault Currents

Quickly and selectively trip the faulted feeder on multiple feeder bus configurations to improve system reliability.

Sense faults on compensated systems with as much as 10,000 ohms using the wattmetric element.

Sense faults on compensated systems with as much as 100,000 ohms using the patented incremental conductance element.



SEL-351 Best Choice Ground Directional Element™ System

Speed SEL-351A Configuration With acSELEATOR QuickSet Software

Shorten the time required to program the SEL-351A Relay by using acSELEATOR QuickSet. Use the event viewer features to speed up delivery of post-fault analysis reports.

Use acSELEATOR QuickSet to apply relay settings:

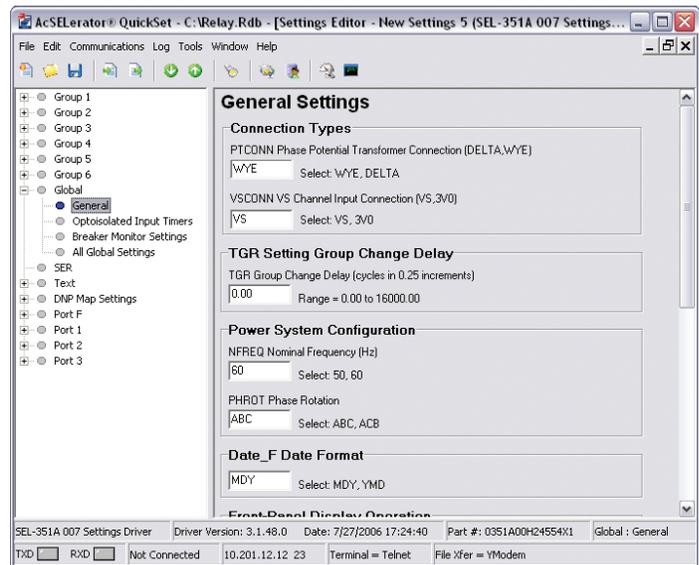
- Develop settings offline.
- View and change settings for enabled elements only.
- Automatically check interrelated settings.
- Automatically highlight out-of-range settings.
- Transfer settings files by using PC communications link with the SEL-351A Relay.

Use acSELEATOR QuickSet to program SELoGic control equations:

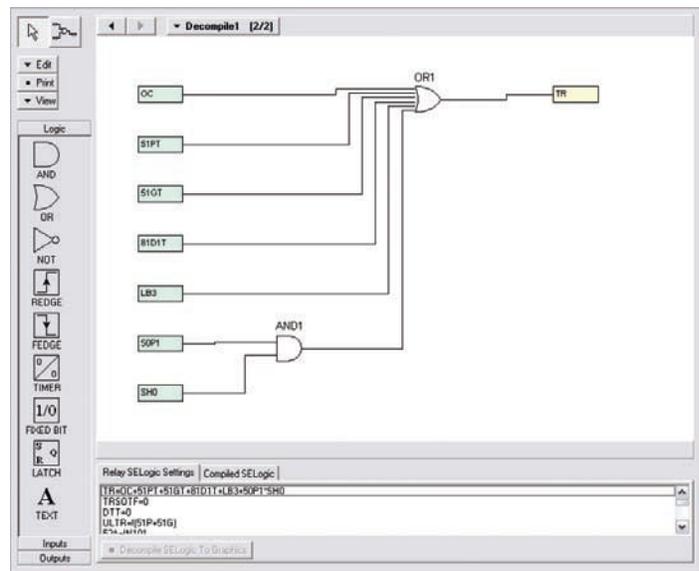
- Develop programmable logic offline.
- Develop SELoGic control equations using graphical and/or text editors.
- Automatically create SELoGic control equation text strings from drag-and-drop graphical logic elements.
- Automatically generate graphical logic elements from SELoGic control equation text strings.
- Develop and test SELoGic control equations using the acSELEATOR QuickSet built-in logic simulator.

Use acSELEATOR QuickSet to analyze fault records and relay element response:

- Convert relay event reports to oscillography with time-coordinated element assertion and phasor/sequence element diagrams.
- Quickly analyze fault records and relay element response using the event viewer.



Use graphical interface to quickly and intuitively set relay.



Graphically create SELoGic control equations.

Connectorized® Version

Choose Connectorized Version for Faster Installation and Removal

Connectorized SEL-351A Relays offer the advantage of robust connections while minimizing installation and replacement time. Three styles of industry-proven, high-reliability connectors are applied. A current-shortening connector for current inputs, a plug-in terminal block for I/O, and a quick-disconnect connector applied for voltage inputs are all included.



SEL-351A Distribution Protection System

General Specifications

AC Current Inputs

5 A nominal

15 A continuous, 500 A for 1 second, linear to 100 A symmetrical, 1250 A for 1 cycle

Burden 0.27 VA @ 5 A; 2.51 VA @ 15 A

1 A nominal

3 A continuous, 100 A for 1 second, linear to 20 A symmetrical, 250 A for 1 cycle

Burden 0.13 VA @ 1 A; 1.31 VA @ 3 A

Sensitive Earth Fault

0.2 A nominal channel IN current input: 15 A continuous, 500 A for 1 second, linear to 5.5 A symmetrical, 1250 A for 1 cycle

Burden 0.002 VA @ 0.2 A; 1.28 VA @ 15 A

0.05 A nominal channel IN current input: 1.5 A continuous, 20 A for 1 second, linear to 1.5 A symmetrical, 100 A for 1 cycle

Burden 0.0004 VA @ 0.05 A; 0.36 VA @ 1.5 A

AC Voltage Inputs

300 V_{L-N} or V_{L-L} continuous, 600 Vac for 10 seconds (wye or delta)

Burden 0.03 VA @ 67 V; 0.06 VA @ 120 V; 0.8 VA @ 300 V

Frequency and Rotation

60/50 Hz system frequency and ABC/ACB phase rotation are user-settable. Frequency tracking range: 40.1–65 Hz (VA required for frequency tracking)

Power Supply Ratings

24/48 V supply 18–60 Vdc; <25 W

48/125 V supply 38–200 Vdc, or 85–140 Vac; <25 W

125/250 V supply 85–350 Vdc, or 85–264 Vac; <25 W

Optoisolated Input Ratings (6 total for standard model, 14 total with optional I/O board)

24, 48, 110, 125, 220, or 250 Vdc, level-sensitive (specify voltage at time of order)

Output Contact Ratings (8 total for standard model, 20 total with optional I/O board)

30 A make per IEEE C37.90-1989 paragraph 6.7.2

6 A continuous at 70°C; 4 A continuous at 85°C

330 Vdc MOV for differential surge protection

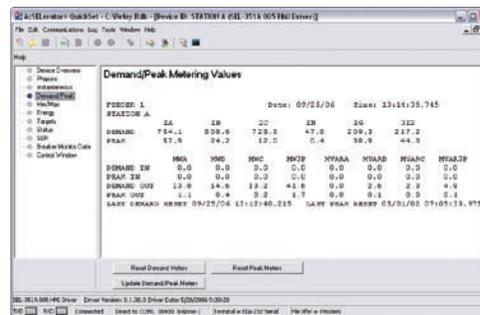
Operating Temperature

-40° to +85°C (-40° to +185°F)

High-Accuracy Metering

Use High-Accuracy Metering in Place of Panel-Mounted Meters

Reduce the installed cost of breaker control panels by avoiding separately mounted metering devices. SEL-351A Relay metered quantities include phase voltages and currents (including demand), sequence voltages and currents, power, frequency, and energy along with maximum/minimum logging of selected quantities.

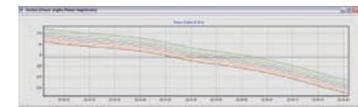


ACSELEATOR QuickSet SEL-5030 Software demand/peak metering display.

Wide-Area Measurements

Synchrophasor Measurements

View absolute phase angles from across the power system.



High-Accuracy Timing

Use precise timestamping to improve analysis of wide-area events.



SYNCHROWAVE® Software concentrates and displays data from across the power system.



Pullman, Washington USA
Tel: +1.509.332.1890 • Fax: +1.509.332.7990 • www.selinc.com • info@selinc.com

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