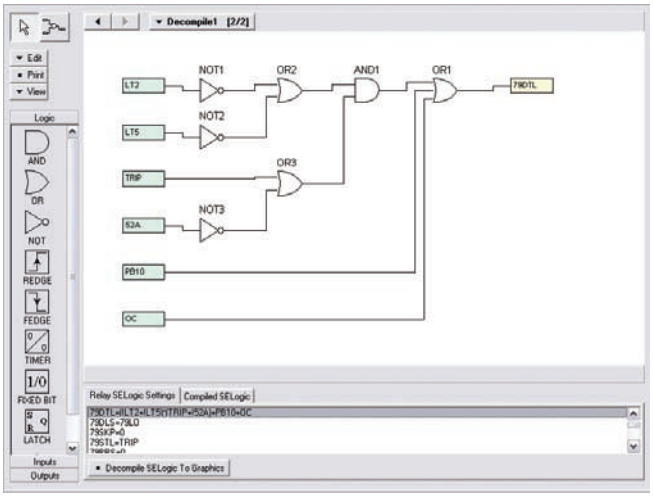
SEL-351S Protection and Breaker Control Relay

Optimize Distribution Protection, Automation, and Breaker Control

Apply the SEL-351S Relay to enhance your service quality through integrated protection, monitoring, and control.



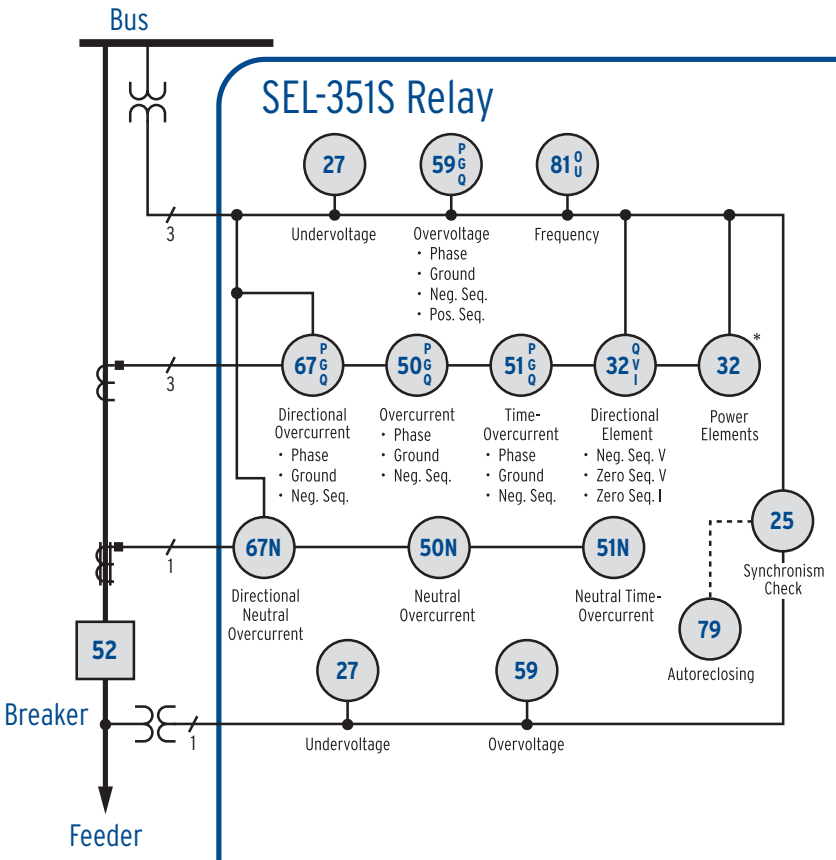
Develop SELOGIC® control equations using ACSELERATOR® Software.

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 SEL Adaptive Overcurrent Element. Apply "recloser" time-overcurrent curves for coordination with and sequencing of downstream reclosers.
- **Operator Controls and Reclosing**
  Use direct-action operator controls to eliminate the need for expensive, panel-mounted control switches and associated wiring. Integrate automation elements, including remote, local, and latch switches, plus display points, for remote and local control. Selectively reclose with synchronism and voltage checks.
- **Relay and Logic Settings Software**
  Use ACSELERATOR QuickSet® SEL-5030 Software to reduce engineering costs for relay settings and logic programming. Use graphical tools included with ACSELERATOR® 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.

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

Functional Overview



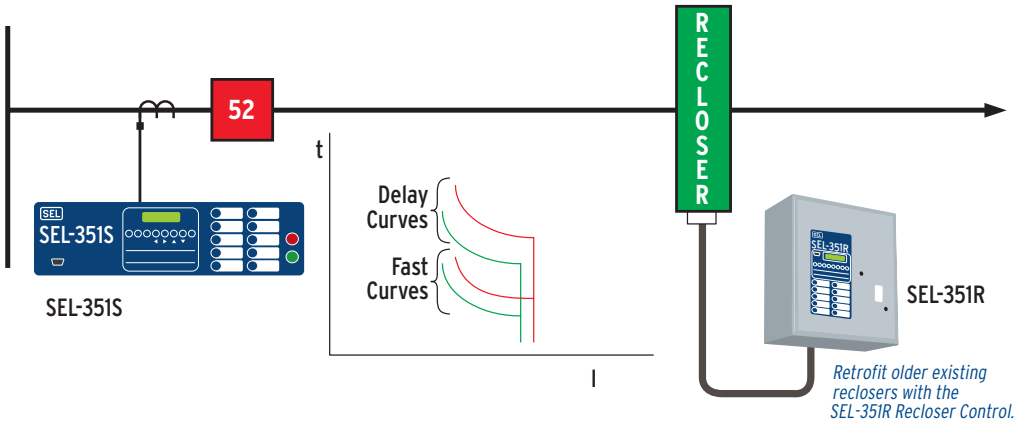
- SELOGIC® Control Equations
- Event Reports
- Sequential Events Recorder
- Breaker-Wear Monitor
- Station Battery Monitor
- DNP3 Level 2 Outstation*
- High-Accuracy Metering
- MIRRORED BITS® Communications*
- Communications-Assisted Tripping
- Remote and Local Control Switches
- Wye or Delta Voltage Connection
- Local Display and Operator Controls
- Synchrophasor Measurements
- Load Profile*
- Fault Locator
- Fast SER Protocol
- Auxiliary Trip/Close Control*
- Voltage Sag/Swell/Interruption Records*
- User-Configurable Labels*
- Sensitive Earth Fault Protection and Directional Protection for Various System Grounding Practices*

** Optional Functions*

Coordinate Overcurrent Protective Devices

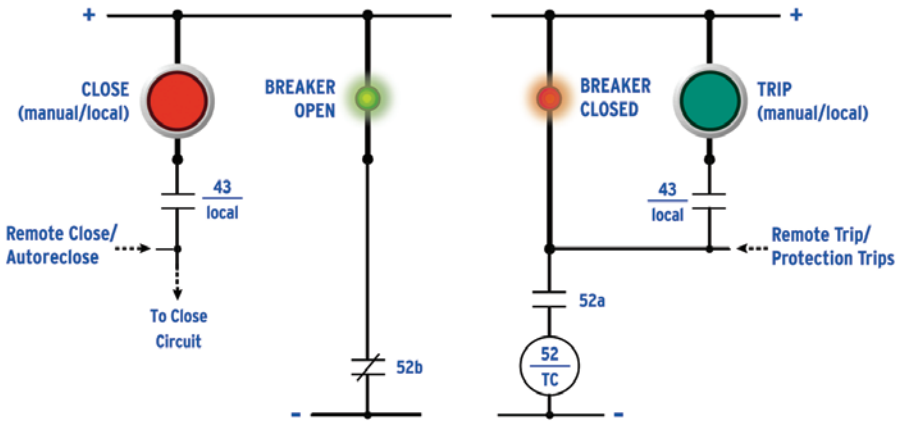
Use any of the 38 traditional recloser curves in the SEL-351S Relay to time-coordinate with downstream circuit reclosers. Sequence coordination keeps the SEL-351S in step with downstream reclosers and prevents tripping by overreaching overcurrent elements for faults beyond reclosers.

Five standard US and IEC time-overcurrent curves provide coordination with other time-overcurrent relays.



Eliminate Panel-Mounted Breaker Control Switches

Specify optional breaker trip/close control switches and indicating lamps for your next SEL-351S application. The independently operated switches and breaker status lamps are functional even if the relay is out of service. Switch contacts and indicating lamps are separately wired to screw-terminal blocks on the rear of the relay. Choose the wiring arrangement that best suits your need for breaker control and status indication. Use programmable operator control buttons AUX 1–AUX 4 to meet specific application requirements, such as for enabling/disabling underfrequency load-shedding schemes and changing relay settings groups.



Suggested application.

Speed SEL-351S Applications With acSELerator QuickSet Software

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

Use acSELerator QuickSet to apply relay settings

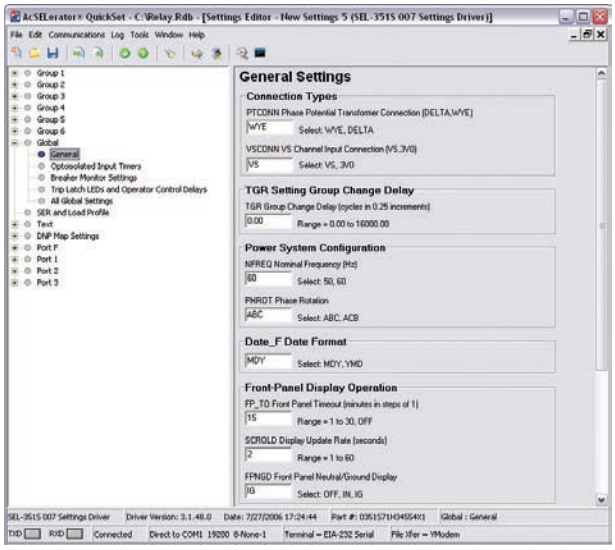
- Develop settings offline.
- View and change settings for enabled elements only.
- Automatically check interrelated settings.
- Automatically highlight out-of-range settings.
- Transfer settings files by using PC communications link with the SEL-351S Relay.

Use acSELerator QuickSet to program SELogic control equations

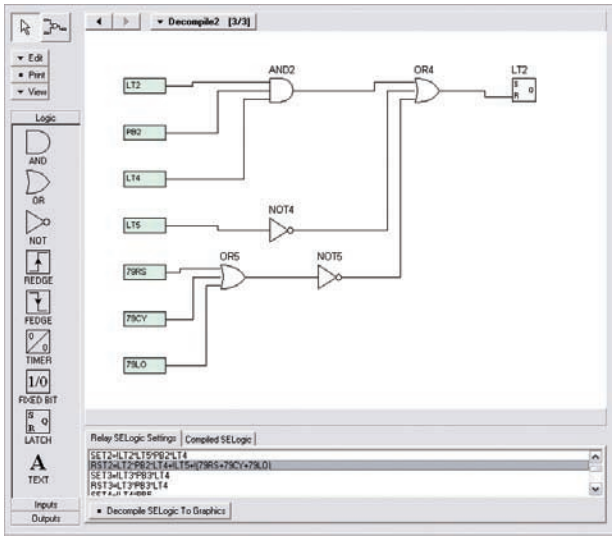
- Develop programmable logic offline.
- Develop SELogic control equations using graphical and/or text editors.
- Automatically create SELogic control equation text strings from drag-and-drop graphical logic elements.
- Automatically generate graphical logic elements from SELogic control equation text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

Use acSELerator 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.



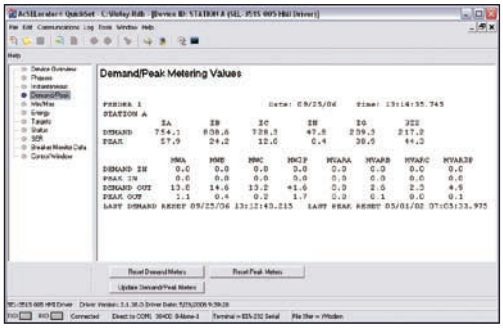
Graphically create SELogic® control equations.

SEL-351S Protection and Breaker Control Relay

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-351S 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.



ACSELERATOR QuickSet® SEL-5030 Software demand/peak metering display.

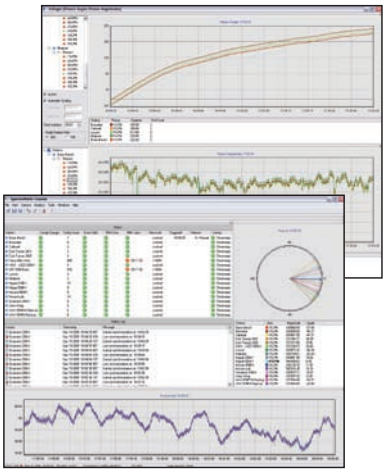
Wide-Area Measurements

Synchrophasor Measurements

View absolute phase angles from across the power system.

High-Accuracy Timing

Use precise time stamping to improve analysis of wide-area events.



SYNCHROWAVE®

SYNCHROWAVE® Software concentrates and displays data from across the power 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 is 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)

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