



SEL-300G Generator Relay

Protect, Monitor, and Control Your Generator



Apply the SEL-300G for comprehensive protection and control of small, medium, and large generators.

Features and Benefits

■ Limit Equipment Damage

Apply complete phase and neutral protection together with 100-percent stator ground fault detection. Specify optional unit differential and thermal monitoring for important machines. Use out-of-step, loss-of-excitation, overexcitation, frequency, and directional power elements for detection of abnormal operating conditions. Accurately detect generator field grounds. Make settings and check connections with acSELERATOR® QuickSet™ SEL-5030 Software. Specify the optional synchronism check function for supervision of paralleling operations.

■ Increase Generator Availability

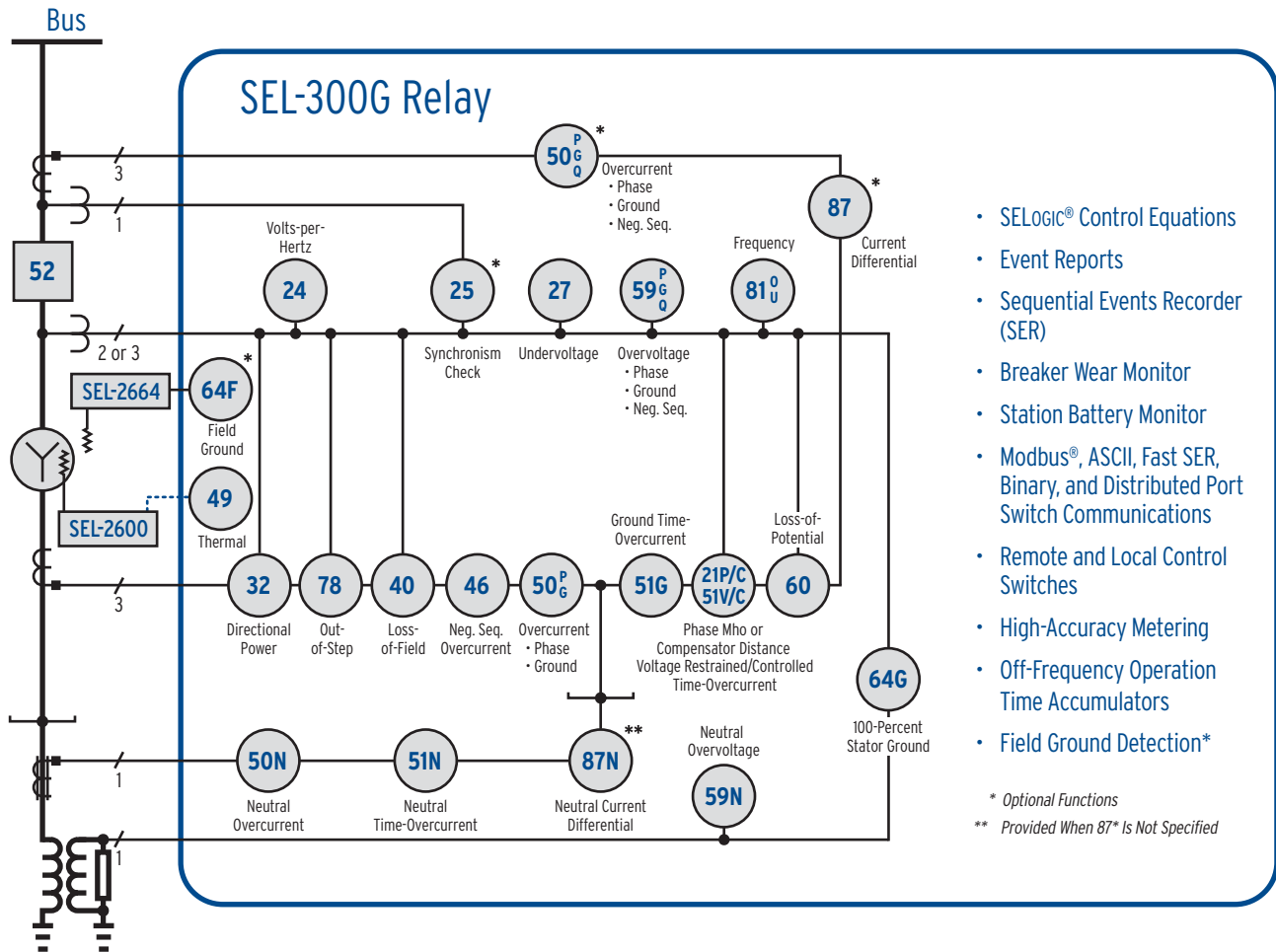
Simplify fault and system disturbance analysis with oscillographic event reports and a Sequential Events Recorder (SER). Monitor real-time and accumulated off-nominal frequency, run-time hours, full-load hours, and other important quantities. Minimize separate metering devices by using voltage, current, power, power factor, and energy metering capabilities. Monitor up to 12 machine temperatures using the SEL-2600 Series RTD Modules.

■ Provide Secure Remote Control and Monitoring

Use Modbus®, ASCII communications, and SEL Fast SER capabilities for control, monitoring, and alarm purposes. Control relay operation and initiate or block automation sequences from remote or local control systems using serial port commands.

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

Functional Overview

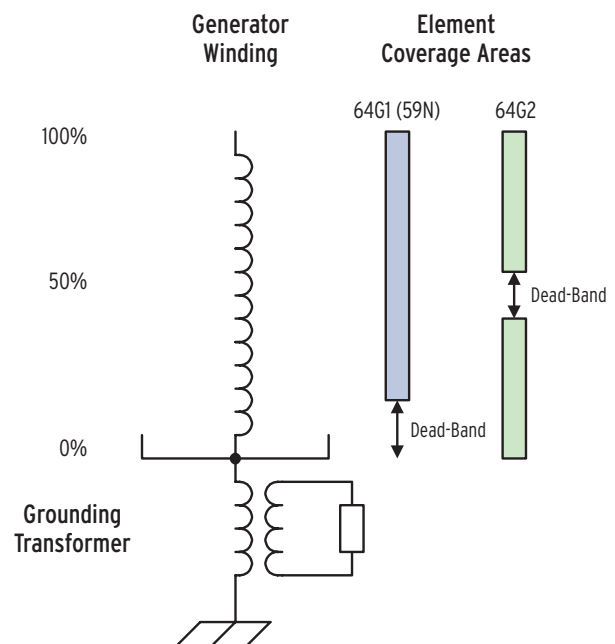


- SELogic® Control Equations
- Event Reports
- Sequential Events Recorder (SER)
- Breaker Wear Monitor
- Station Battery Monitor
- Modbus®, ASCII, Fast SER, Binary, and Distributed Port Switch Communications
- Remote and Local Control Switches
- High-Accuracy Metering
- Off-Frequency Operation Time Accumulators
- Field Ground Detection*

Complete Generator Fault Protection

Limit equipment damage and speed repairs with high-speed protection for all types of phase and ground faults. Current and voltage elements, combined with optional differential protection, make the SEL-300G suitable for all generator sizes and configurations.

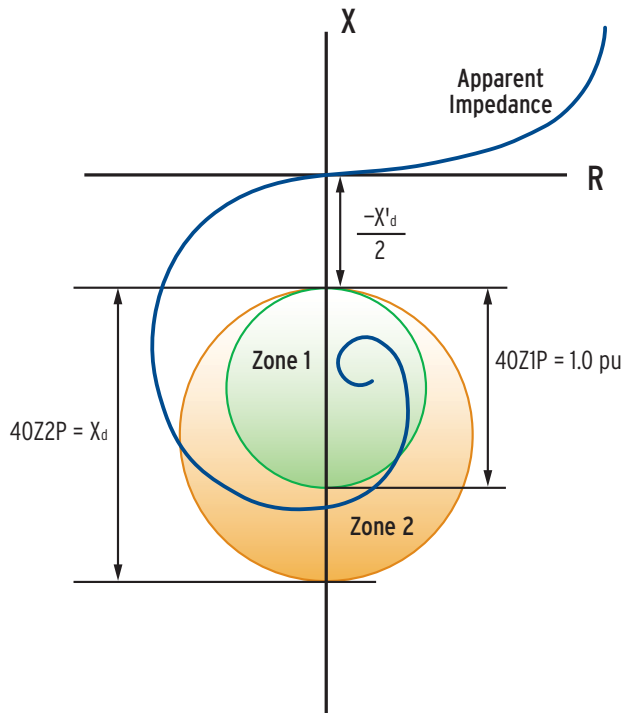
- Current and voltage elements protect large and small machines against damaging faults.
- Optional differential protection provides sensitive and fast protection for generators and unit transformers. Harmonic blocking provides security when transformers are in the generator differential zone.
- 100-percent stator ground fault protection uses fundamental and third-harmonic voltage signals.
- Continuously measure field-to-ground resistance using the SEL-2664 Field Ground Module. Accurately detect field ground faults whether the generator is operating, stopped, or de-energized.



100-percent stator ground fault protection.

Complete Generator Fault Protection (cont.)

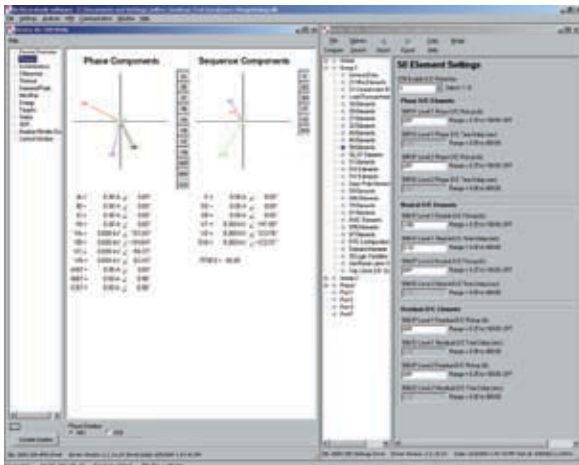
- Dual-element loss-of-field protection prevents rotor heating and system instability from abnormally low excitation.



Dual-element loss-of-field operating characteristic, negative Zone 2 offset.

Simplified Setup and Troubleshooting

- Use acSELEATOR QuickSet to customize your generator protection. Set and edit relay configuration, settings, and logic.
- View the HMI screens in acSELEATOR QuickSet to check wiring polarity and connections.



acSELEATOR QuickSet HMI simplifies configuration and troubleshooting.

Event Analysis, Recording, and Alarming

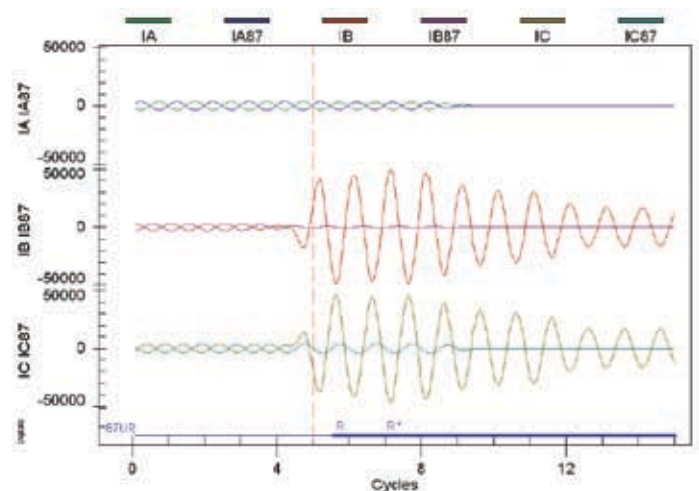
Speed repair and troubleshooting to reduce costs and get units back online. Identify root cause for emergency and triggered shutdown of generators and prime movers using detailed event reports. Program recordings of voltage and current waveforms with internal relay and external monitor points for an accurate record of operations and events.

- Improve operation analysis with a timed record of the last 512 operations of 96 different internal and external events.
- Use the built-in SER to verify startup and shutdown sequencing, routine and emergency operations, and timing of alarms.

GENERATOR	Date: 01/20/01	Time: 10:07:10.890		
TERMINAL				
FID=SEL-300G-X113V00H425XX4X-D980119	CID=88A9			
#	DATE	TIME	ELEMENT	STATE
11	01/20/01	09:09:58.826	51N	Deasserted
10	01/20/01	09:09:58.826	50N1T	Deasserted
9	01/20/01	09:09:58.826	50N1	Deasserted
8	01/20/01	09:09:58.826	FAULT_TRIP	RESET
7	01/20/01	09:09:58.826	FIELD_BKR	OPENED
6	01/20/01	09:09:58.830	64G1	Deasserted
5	01/20/01	09:09:58.876	86_TRIP	RESET
4	01/20/01	09:09:58.876	PRIME_MVR_TR	RESET
3	01/20/01	09:09:58.876	FIELD_BKR_TR	RESET
2	01/20/01	09:09:58.876	GEN_MAIN_TR	RESET
1	01/20/01	09:10:00.828	INAV_ENR_SCHM	ARMED

Log important user-defined system activities using the SER.

- Receive instant alarm messages triggered by selectable relay events using SEL Fast SER messaging.
- Use the acSELEATOR QuickSet Software Event Viewer or the more advanced acSELEATOR Analytic Assistant SEL-5601 Software to clearly view and understand system faults. To aid in analysis, records can be up to 180 cycles long.



Using acSELEATOR Analytic Assistant, clearly view and understand system faults like this phase-to-phase fault captured by the SEL-300G.

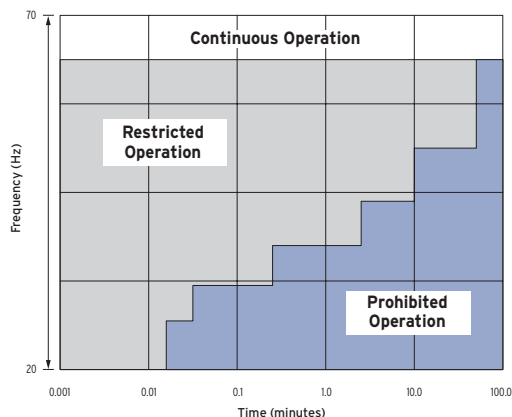
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System Backup Protection

- Use phase mho or compensator distance elements for secure system protection with stable reach looking through a delta-wye transformer.
- Apply voltage-restrained or voltage-controlled overcurrent relaying for reliable system fault response.

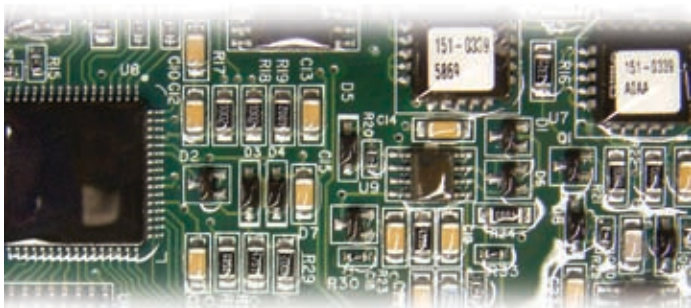
Abnormal Operation Protection

- Use the SEL-300G to measure and store accumulated off-nominal frequency data for proactive maintenance operations.
- Protect against damage from inadvertent energization. The SEL-300G instruction manual provides complete SELoGIC® control equation settings to activate protection when the generator is offline.



Prevent vibration or damage with flexible alarms for off-nominal frequency.

Conformal Coating



Make the world's most reliable relays even tougher. Add an extra level of protection to printed circuit boards with optional conformal coating.

General Specifications

AC Voltage Input

- 80-208 V_{L-L} nominal for four-wire wye voltage input
- 80-140 V_{L-L} nominal for three-wire delta voltage input
- 300 V_{L-N} continuous limit for three-phase, four-wire wye connection
- 300 V_{L-L} continuous limit for three-phase, three-wire delta connection
- 365 Vac for 10 seconds
- 300 V continuous, V_{N-NN} neutral voltage input
- 300 V continuous, V_{S-NS} synch voltage input
- Burden 0.13 VA @ 67 V; 0.45 VA @ 120 V; 0.80 VA @ 300 V

Power Supply Ratings

- 125/250 V 85-350 Vdc or 85-264 Vac
- 48/125 V 38-200 Vdc or 85-140 Vac
- 24/48 V 18-60 Vdc
- 25 W maximum for all supplies

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

Standard Control Input and Output Ranges

- 24, 48, 110, 125, or 250 Vdc
- Standard configuration provides 6 inputs and 8 outputs, <5 ms pickup, <8 ms typical dropout time, 30 A make, 6 A continuous duty
- Additional interface I/O board may be selected with standard inputs and high-current interrupting outputs

Operating Temperature

- 40° to +85°C (-40° to +185°F)
- (Note: LCD contrast impaired for temperatures below -20°C)



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