

# SEL-2664S

## Stator Ground Protection Relay

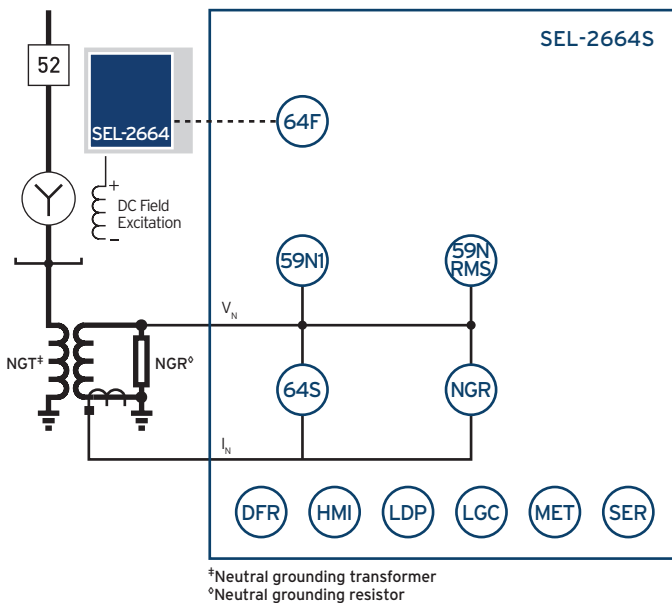


## 100% Stator Ground Protection, 100% of the Time

- Protect your generator against stator ground, neutral overvoltage, and grounding resistor faults for all operating conditions.
- Eliminate frequency blind spots during generator startup by using the unique multisine injection.
- Reduce cost by using the SEL-2664S Stator Ground Protection Relay as a standalone protection device or with SEL or third-party generator protection.



# Functional Overview



## ANSI Numbers/Acronyms and Functions

|     |                          |
|-----|--------------------------|
| 59N | Stall-Speed Switch       |
| 64F | Undervoltage*            |
| 64S | Undercurrent/Underpower* |

## Additional Functions

|     |                                       |
|-----|---------------------------------------|
| DFR | Event Reports                         |
| HMI | Operator Interface                    |
| LDP | Profile Report Monitoring             |
| LGC | SELogic® Control Equations            |
| MET | Metering                              |
| NGR | Neutral Grounding Resistor Open/Short |
| SER | Sequential Events Recorder            |

\*Optional Features

## Key Features

### 100% Stator Winding Protection, 100% of the Time

Protect generators from stator ground faults at standstill, during startup, and while running with the multisine frequency injection and neutral overvoltage-based protection in the SEL-2664S. This solution is intended for use with high-resistance grounded generator applications.

### Stator Protection for Retrofit and New Equipment Applications

Use the SEL-2664S as a standalone protection device or with SEL or third-party generator protection. The SEL-2664S is ideal for all high-resistance-grounded, synchronous-machine applications.

### Rotor Field Ground Protection

Detect field ground faults by connecting the SEL-2664S to the SEL-2664 Field Ground Module to measure field insulation-to-ground resistance using a switched dc voltage injection method.

### Elimination of Protection Blind Spots

Inject up to four individual frequencies using the unique multisine frequency injection to ensure that the protection does not have a blind spot during generator startup.

### Rugged Design for Extreme Environments

Built to the same high standards as SEL protective relays, the SEL-2664S withstands vibration, electrical surges, fast transients, and extreme temperatures, meeting stringent industry standards. The printed circuit boards are conformally coated to provide an additional barrier to airborne contaminants, such as hydrogen sulfide, chlorine, salt, and moisture.

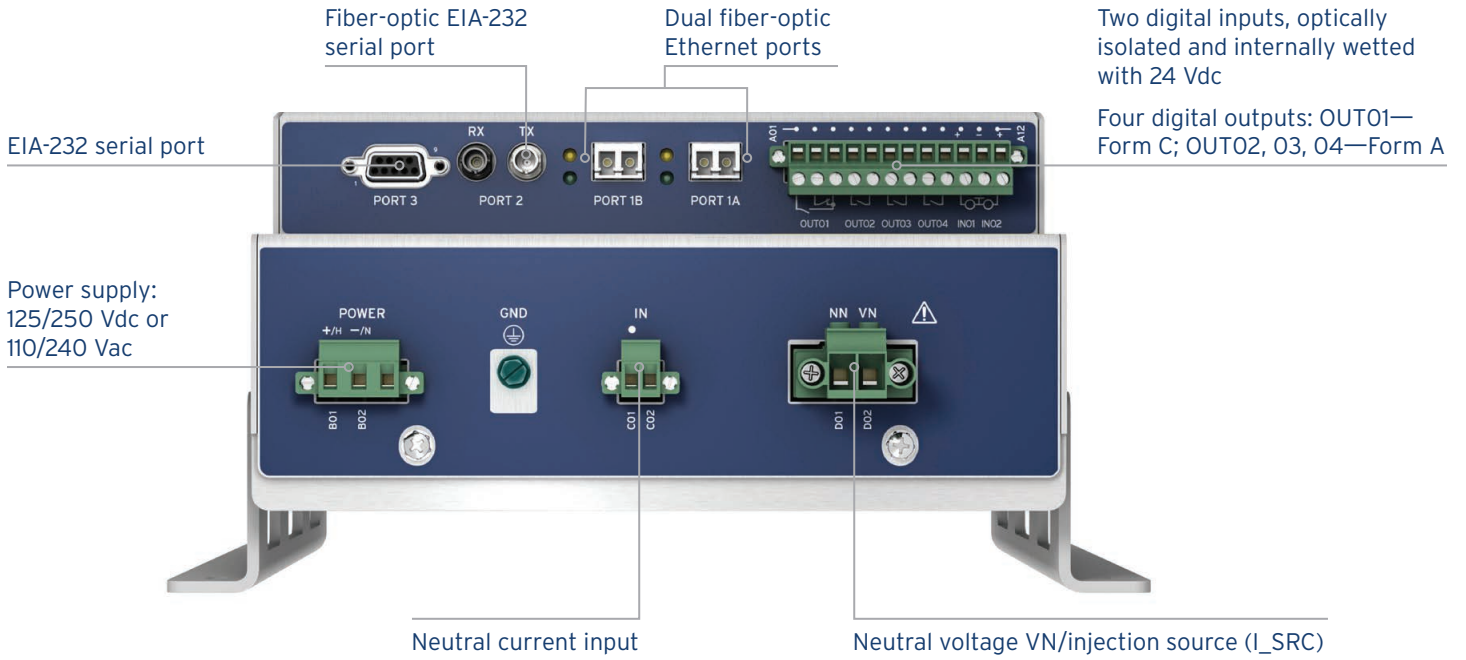
### Flexible Communications

Easily integrate the SEL-2664S into your system with multiple communications protocols, including Modbus®, DNP3, Telnet, IEC 61850, and FTP. You can implement communications-assisted tripping schemes with standard protocols, including MIRRORRED BITS® communications and IEC 61850 GOOSE. The SEL-2664S offers one fiber serial port, two fiber Ethernet ports, and two EIA-232 serial ports.

### Redundant Operation

Use two SEL-2664S Relays in parallel to provide redundant stator ground fault protection for critical applications.

# SEL-2664S Product Overview



# SEL-2664S Specifications

## General

|   |   |
|---|---|
| <b>Injection Source (I_SRC)</b>                               | Source rating: 50 VA continuous<br>Nominal injected current amplitude: 0.5–5.0 A rms<br>Continuous thermal rating: 5 A rms<br>Amplifier clipping level: $> \pm 20$ V peak<br><b>Four-Frequency Multisine Injection</b><br>For 60 Hz nominal: 18, 24, 36, and 48 Hz<br>For 50 Hz nominal: 15, 20, 30, and 40 Hz<br>Maximum open-terminal voltage: 26 V peak<br>Protection: Self-protecting |
| <b>Neutral Voltage Inputs</b>                                 | Rated operating voltage ( $U_o$ ): 2.5–240 Vac<br>Rated insulation voltage ( $U_i$ ): 300 Vac<br>Maximum continuous overvoltage rating: 275 Vac   |
| <b>Core-Balanced Current Transformer (CBCT) Current Input</b> | Nominal input current: 5 mA ac rms, linear to 20 mA peak<br>Continuous thermal rating: 1 A<br>Measurement clipping level: $\geq 22$ mA peak<br>One-second thermal rating: 10 A<br>Burden rating: $< 0.012$ VA at 30 mA<br>Rated insulation voltage ( $U_i$ ): Galvanically connected to 64S terminal common   |
| <b>Output Contacts</b>  | This relay supports Form A and C outputs.<br><b>DC Output Ratings</b><br>Operational voltage: 24–250 Vdc<br>Continuous carry: 6 A @ 70°C, 4 A @ 85°C<br><b>AC Output Ratings</b><br>Maximum operational voltage: 240 Vac<br>Rated operational current (Ie): 3 A @ 120 Vac, 1.5 A @ 240 Vac  |
| <b>Communications Protocols</b>                               | SEL, Modbus, DNP3, FTP, TCP/IP, Telnet, Simple Network Time Protocol (SNTP), IEC 61850, and MIRRORRED BITS communications   |
| <b>Operating Temperature</b>                                  | –40° to + 85°C (–40° to + 185°F)  |
| <b>Mounting Options</b>                                       | Available with wall-, panel-, and rack-mount options  |

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