

# SEL Protective Relays



Approved for Nonsafety Critical Nuclear Applications



*Upgrade Electromechanical Relays to SEL Digital Relays*

## Benefits

### Demonstrated Compliance

Detailed audits have documented SEL's compliance with nuclear quality requirements for nonsafety critical applications. Stringent engineering design processes, manufacturing, and quality review substantiate our commitment to quality.

### Highest Reliability

SEL manufactures products with the industry's highest reliability and a mean time between failures (MTBF) that averages over 500 years. Our focus on simple, reliable designs, best quality components, and type-testing beyond the limits of the required standards provides a solid foundation for our ten-year warranty.

### Proven Advanced Technology

SEL protection and automation solutions improve your uptime and provide microsecond-accurate event reports that detail any system disturbance. Easily upgrade electromechanical relays to SEL digital protection. Event reports assure that you will always reach root cause of any electrical issue.

### Support Near the Power Plant

Field service engineers are located near our customers all over the world. Expert technical help is always close by, whether on the phone or at your site.



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

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## SEL Quality

At SEL, we take our commitment to quality very seriously as demanded by the critical applications for the safe and reliable delivery of power to society. SEL relays meet or exceed the following operating conditions set by North American and international standards.

<b>Electromagnetic Compatibility Emissions</b>	IEC 60255-25:2000 [BS EN 60255-25:2000] TT-2521
<b>Conducted RF Immunity</b>	IEC 60255-22-6:2001 [BS EN 60255-22-6:2001] TT-2522 IEC 61000-4-6:2008 TT-2522
<b>Electrostatic Discharge Immunity</b>	IEC 60255-22-2:2008 [BS EN 60255-22-2:1997] TT-2523 IEC 61000-4-2:2008 [BS EN 61000-4-2:2009] TT-2523 IEC 61000-4-2:2008 [BS EN 61000-4-2:2009] TT-2523
<b>Fast Transient/Burst Immunity</b>	IEC 60255-22-4:2008 [BS EN 60255-22-4:2008] TT-2524 IEC 61000-4-4:2004 + CRGD:2006 [BS EN 61000-4-4:2004] TT-2524
<b>Magnetic Field Immunity</b>	IEC 61000-4-8:2001 [BS EN 61000-4-8:1994 + A1:2001] TT-2525 IEC 61000-4-9:2001 [BS EN 61000-4-9:1994 + A1:2001] TT-2526
<b>Power Supply Immunity</b>	IEC 60255-11:2008 TT-2527 IEC 61000-4-11:2004 [BS EN 61000-4-11:2004] TT-2527 IEC 61000-4-29:2000 [BS EN 61000-4-29:2001] TT-2527
<b>Radiated Digital Radio Telephone RF Immunity</b>	ENV 50204:1995 TT-2528
<b>Radiated Radio Frequency Immunity</b>	IEC 60255-22-3:2007 [BS EN 60255-22-3:2008] TT-2528 IEC 61000-4-3:2008 [BS EN 61000-4-3:2006 + A1:2008] TT-2528 IEEE C37.90.2:2004 TT-2529
<b>Surge Immunity</b>	IEC 60255-22-5:2008 TT-2530 IEC 61000-4-5:2005 [BS EN 61000-4-5:2006] TT-2530
<b>Surge Withstand Capability Immunity</b>	IEC 60255-22-1:2007 [BS EN 60255-22-1:2008] TT-2531 IEEE C37.90.1:2002 TT-2532 NEMA ICS 1:2000 TT-2533
<b>Cold</b>	IEC 60068-2-1:2007 [BS EN 60068-2-1:1993 + REAF:2005] TT-2534
<b>Damp Heat, Cyclic</b>	IEC 60068-2-30:2005 [BS EN 60068-2-30:2006] TT-2535
<b>Damp Heat, Steady State</b>	IEC 60068-2-78:2001 [BS EN 60068-2-78:2002] TT-2536
<b>Dry Heat</b>	IEC 60068-2-2:2007 [BS EN 60068-2-2:1993 + REAF:2005] TT-2537

<b>Vibration</b>	IEC 60255-21-1,2:1988 [BS EN 60255-21-1, 2:1996 + A1:1996] TT-2538 IEC 60255-21-3:1993 [BS EN 60255-21-3:1995 + A1:1995] TT-2538 ANSI/IEEE 344-1987
<b>Dielectric Strength</b>	IEC 60255-5:2000 [BS EN 60255-5:2001] TT-2539 IEEE C37.90:2005 TT-2539
<b>Impulse</b>	IEC 60255-5:2000 [BS EN 60255-5:2001] TT-2540 IEEE C37.90:2005 TT-2540

## Audit Results Show SEL Compliance

SEL has established assurance and quality control systems that have made our relays the most reliable in the world. SEL matches our processes to the stringent requirements of the International Organization for Standardization (ISO), Nuclear Regulatory Commission (NRC), and Canadian Standards Association (CSA). Independent audits by nuclear power plant owners in the United States and Canada have demonstrated SEL compliance with requirements for their nonsafety critical nuclear applications.

Customers worldwide have been upgrading electromechanical and solid-state relays to SEL digital relays to benefit from the continuous self-diagnostics, detailed time-tagged event reports, and unmatched SEL reliability. Now operators of nuclear facilities can gain the same benefits and continue to meet their quality requirements.

SEL supports more than just transmission and distribution systems. Power generating facilities are choosing SEL for the same reasons utilities rank SEL as the number one supplier in the industry.

## Commitment to Quality

Schweitzer Engineering Laboratories, Inc., is committed to quality. Our ISO 9001 quality standard certification, compliance with IOCFR50 Appendix B/IOCFR Part 21, and worldwide, ten-year product warranty are examples of this commitment. Please contact SEL for more information about SEL products, operating experience, or nuclear applications. Visit [www.selinc.com/nuclear](http://www.selinc.com/nuclear).



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