



## → Retrofit Solutions

From individual device upgrades to system-wide modernization projects, SEL offers comprehensive services and 24/7 technical support to help you simplify retrofit programs and integrate advanced protection, control, automation, and communications technologies into your existing infrastructure.

SEL offers retrofit solutions for:

- Relay upgrade programs
- Electromechanical (EM) relays
- Analog and digital devices
- Communications infrastructure
- Remote terminal units (RTUs)

### Improve Safety

- Reduce arc-flash incident energy by up to 88% with high-speed arc-flash detection technology.
- Detect high-impedance faults (HIF) with Arc Sense technology to identify downed conductors and reduce the risk of wildfires.
- Eliminate the hazard of running energized CT and PT conductors into the control house with fiber-optic-based Time-Domain Link technology (TiDL).

### Increase Reliability

- Clear faults with advanced protection elements and tripping speeds as fast as 1 millisecond.
- Improve situational awareness with detailed event reports, synchrophasor data, and advanced analytics software.
- Locate faults within one tower span with traveling-wave fault location technology.

### Reduce Complexity

- Reduce device count by employing real-time automation controllers (RTACs) for protocol conversion, data concentration, and local visualization.
- Integrate devices easily and access more data with protocols such as DNP3, IEC 61850, IEC 60870, Modbus, and Ethernet/IP.
- Implement advanced automation and control systems with the high-speed, deterministic logic processing of RTACs.

### Enhance Security

- Strengthen network security with software-defined networking and deny-by-default traffic forwarding.
- Minimize attack surface with secure operating systems designed for SEL automation controllers.
- Manage remote assets securely using encrypted protocols, role-based permissions, and automated password management.



## Comprehensive Services and Solutions

With decades of experience designing, manufacturing, and integrating intelligent electronic devices (IEDs), we're experts in how hardware and software operate within power protection, management, and control systems.

Our local support teams work with you directly to find the ideal replacement for an existing device and provide free, 24/7 support for the entire life of the product. For complete retrofit programs, SEL Engineering Services provides comprehensive consulting, design, manufacturing, installation, and commissioning services. Our engineers also help manage outage scheduling to minimize downtime during retrofit work for a seamless transition back into normal operations.

## Products and Support You Can Rely On

SEL products are designed and manufactured for the harshest industrial and substation environments, exceeding all industry standards for temperature, shock, and electric stress. An optional conformal coating for circuit boards adds an extra level of protection against contaminants in extreme environments.

Every SEL product comes with a ten-year warranty, no-charge diagnostic and repair services, local support, and a variety of test procedures and certifications. Our support teams are stationed in regional offices around the world and staffed with application engineers who are experts in our products and in power system applications.