



Project Highlight



DIGITAL SECONDARY SYSTEMS

Power company implements digital secondary system that uses SEL TiDL® technology

Utility and industrial companies require operational efficiency and reliability to meet modern energy demands. SEL works with power companies to deliver process bus solutions that enable time-deterministic data exchange, simplify configuration, and support a fast, safe, and secure deployment using SEL Time-Domain Link (TiDL) technology.

Challenge

As part of a modernization initiative, a power company needed an advanced protection and control solution for its substation that would scale over time without increasing configuration complexity or requiring extensive networking infrastructure. Through implementing a digital secondary system (DSS), the objective of the company was to streamline networking, minimize installation times, prioritize safety, and enhance cybersecurity.

Solution

The power company implemented a secure, point-to-point process bus solution that uses SEL TiDL technology. SEL-TMU TiDL Merging Units (TMUs) digitize analog current and voltage signals from primary equipment and transmit them via fiber-optic cable to TiDL-enabled protective relays in the control house. The solution simplifies the settings configuration by using one protocol for sampled analog values, control signals, and data synchronization. TiDL architecture also reduces attack surfaces by avoiding Ethernet networks. No extensive copper wiring, GPS clocks, or Ethernet switches are required. It improves personnel safety in the control house by keeping secondary wiring in the yard.

Results

The breaker cabinet, which arrived prewired and integrated with TMUs, was installed in a day. The company has standardized on TiDL and SEL relays for its DSS.

"Simplicity and speed provide the biggest value," the project director of the company said. "With a point-to-point architecture, TiDL significantly reduces the learning curve—the merging units in the yard act as direct extensions of the relay. Engineers configure the system using the same familiar tools and methods we've always used."

About SEL

SEL was founded in 1982 with the invention of the digital protective relay. Today, SEL is a 100 percent employee-owned company that specializes in creating products and solutions that monitor, protect, control, automate, and secure power systems and other critical infrastructure around the world. SEL is headquartered in Pullman, Washington, and serves customers in more than 170 countries.

World-Class Manufacturing

At SEL, we design and manufacture our electronic devices, including circuit boards, in factories we own and operate in the United States. Additionally, we assemble custom panels in our factories in the United States, Mexico, Colombia, and Brazil. Our robust manufacturing infrastructure includes vertical integration, streamlined processes, and supply chain risk management to ensure the quality, reliability, and availability of our products.

Cybersecurity Philosophy

SEL believes the safety of your system and availability of devices come first, which is why we have emphasized cybersecurity since our founding. Our earliest devices featured two levels of password-protected access, and today, we secure our operations and products with layered defenses. We practice our cybersecurity philosophy throughout our business, from product development and manufacturing to our engineering and cyber services departments.

Proven Reliability

For more than forty years, electric utilities, heavy industries, and critical infrastructure around the world have trusted SEL solutions to keep their essential systems and processes running. These solutions are built on the capabilities of our rugged devices, which are designed and tested to operate in temperature ranges as wide as -40° to $+85^{\circ}\text{C}$ (-40° to $+185^{\circ}\text{F}$) and meet or exceed industry standards for performing in harsh operating conditions.

Industry-Leading Warranty

We back our products with a worldwide, ten-year warranty. If a product fails under warranty, we'll repair or replace it at no cost.

Local Support, Global Expertise

Technical support is available at no cost for the entire service life of every SEL product. With application engineers located around the world, we provide expert support no matter where you are.

Contact Us

Whether it's finding the right devices to protect, automate, or optimize your systems or designing a custom turnkey solution, we will work with you to find the best way to achieve your objectives.