Securing Your Supply Chain

Best Practices From SEL
Society depends on critical infrastructure.

Critical infrastructure depends on supply chain security.

SEL’s culture of quality, continuous improvement, and innovation drives us to create the safest, most reliable, and most economical products for critical infrastructure. To do this, we select only the highest quality components and follow the best known security practices, many of which have been created by us and have been endorsed and publicized by the National Institute of Standards and Technology (NIST) and the U.S. Resilience Project.

SEL understands that secure supply chains are critical not only to a company’s success but also to national security. Supply chains feed our critical infrastructure operations, which in turn power our society. As the focus on supply chain security continues to intensify, infrastructure operators are asking their suppliers for details about what they are doing to address this issue. This document outlines the processes SEL follows to ensure a safe and dependable supply chain for the products we deliver to customers around the world.
How SEL Ensures a Dependable Supply Chain

SEL’s supply chain is global and complex. We take a comprehensive approach in evaluating the risks to our supply chain. Our R&D division uses a rigorous design and part qualification process to evaluate potential variables. This approach consists of eight basic steps.

Step 1: Build Trusted Supply Networks

ANNUAL SUPPLIER CONFERENCES
Every year, SEL hosts a Supplier Conference for vendors who supply us with component parts, equipment, and services. During this event, more than 200 companies come to our headquarters in Pullman, Washington, where we share our technical needs and strategic objectives for the coming year and identify ways of partnering to ensure a continuous supply of quality parts.

ONSITE AUDITS
This relationship-building continues throughout the year as we conduct onsite audits of our suppliers to verify that their quality and security processes meet our required specifications.

ORGANIZATIONAL APPROACH TO SUPPLIER SELECTION AND MONITORING
At SEL, supply chain risk management relies on cross-functional collaboration. The process begins with the selection of vendors, which is a team effort between product development, quality, and purchasing. Similarly, different teams weigh in on component selection, ongoing monitoring of vendors and parts, and onsite vendor audits. The approach makes risk management everyone’s responsibility.

PRIVACY
We do not share our bills of materials (BOMs). We provide forecasts by part number, unrelated to the product. We never send out design schematics in order to avoid disclosing other vendor product and part information.

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Effective Security Depends on Awareness, Speed, and Flexibility
Companies need freedom to:
- Use all available tools.
- Improve upon available tools through innovation.
- Proactively mitigate risks.
- Quickly resolve potential vulnerabilities.

To Keep Pace With Technology, Security Should Be Dynamic
SEL knows our own business better than anyone else. Because of this, we understand that what’s “required” may not always be enough. To achieve our own high security standards, we challenge ourselves to exceed the status quo and constantly invent new ways to mitigate risks and improve quality.
Step 2: Rate Suppliers’ Risks

PQFIDS
At SEL, we employ a supplier rating system that evaluates every supplier based on price, quality, features, innovation, delivery, and service (PQFIDS). To arrive at this rating, we assess the following supplier risks:

- Manufacturing locations
- Material lead times
- Financial health
- Replenishment methodologies
- Technology type
- On-time delivery performance

OUR SUPPLIERS’ SUPPLIERS
It’s not enough to know our first-tier suppliers. We ask our suppliers to identify their first-tier suppliers, along with their key risks, mitigation strategies, and replenishment methodologies.

PREFERENCE FOR DOMESTIC SUPPLIERS
To the greatest extent possible, we source within the United States.

TRANSPORTATION AND SHIPPING SUPPLIER QUALIFICATION
To help ensure the secure delivery of our products to our customers, we apply the same supplier qualification processes to our transportation and shipping suppliers.
Step 3: Ensure Component Integrity

COMPONENT QUALIFICATION PROCESS
To ensure the integrity of our products, we verify the performance of all purchased components against supplier product specifications.

DIRECT PROCUREMENT
We procure components directly from the manufacturer or official distributors. If components must be purchased outside of this prescribed process, we take additional steps to ensure their integrity: we use x-ray, inspect packaging, and consult the manufacturer’s design drawings.

CONTINUOUS TESTING
Throughout the manufacturing process, we are constantly testing our products. If variations in performance are found, we work to understand the root cause of that variation. We have also developed methods to detect counterfeit products.

FINAL DELIVERY
When requested, we support our customers with installation and commissioning, further ensuring component and product integrity.

Step 4: Keep Track of Components and Products

EASY-TO-ACCESS INFORMATION
We keep a detailed record of every product we manufacture so we know where our products are installed and can notify customers about potential quality or security issues.

OUTSTANDING WARRANTY
Offering the best warranty in the industry provides an incentive for our customers to return products to us when they fail. We can then examine these products and find the root causes of defects, which in turn enables us to identify problems with our design process or with our suppliers and thus allowing us to improve our product designs. SEL provides a ten-year warranty at no cost on all products.
Step 5: Ensure Component Availability

IDENTIFYING AT-RISK PARTS
Because SEL keeps a detailed record of every product we manufacture, in the aftermath of the 2011 Japanese earthquake and tsunami, we were able to quickly identify which parts were at risk of becoming depleted. We immediately moved to purchase additional inventory from existing or alternative suppliers to ensure the uninterrupted flow of SEL products to customers.

MINIMIZING THE IMPACT OF DISRUPTIONS
SEL works with suppliers to ensure we and they keep sufficient inventory of specialty parts.

Step 6: Collaborate With Customers and Industry

CUSTOMER INSPECTION AND FEEDBACK
We regularly invite our customers to our facilities so they can inspect our supply chain security risk management practices, our product testing, and our quality processes. Throughout the procurement process, SEL works to understand the supply chain security and compliance needs of our customers so we can help them achieve their specified goals and/or requirements.

INDUSTRY INVOLVEMENT
We participate in various government-led initiatives and standards development activities so we can be aware of the current best practices of others, contribute to industry best practices, and stay attuned to the evolving demands placed on our customers. Similarly, we contribute to and use guidance documents, such as the NIST Cybersecurity Framework, to improve our own processes and controls and help shape agreed upon industry best practices.
**Step 7: Build Security Into Company Practices**

**SOURCE CODE**
We own every line of our source code, and we do not share source code or schematics.

**INTERNAL TESTING**
SEL has a robust process that uses both standards and special testing. All testing is performed onsite at SEL by SEL employees.

**NEED TO KNOW**
We compartmentalize projects and do not share information internally unless there is a need to know.

**ROBUST ARCHITECTURES**
We embrace simplicity of design and apply this to create resilient control system and product architectures.

**CYBERSECURITY**
We embed cybersecurity from the earliest stages of product development and enforce strict security practices for employees and visitors.

**ROOT CAUSE**
Every failure is significant. We get to the root cause of every problem.

**Step 8: Ongoing Risk Management**

**EMERGING RISK MONITORING**
Executives at SEL include risk management as part of their daily activities. They stay informed of emerging threats to the supply chain and make adjustments accordingly.

**IN-HOUSE SOFTWARE DEVELOPMENT**
We develop the majority of the software that our products use. If we use third-party software, we acquire the source code. Products go through numerous peer reviews. We also use automated tools for inspecting code in order to identify potential issues developers may have missed.

**VERTICAL INTEGRATION**
SEL makes many of our product components in-house. This allows us to ensure high quality as well as grow our expertise with that component.
SEL—Who We Are

SEL partners with utilities and industries around the world to ensure the safe, reliable, and economical delivery of electric power to critical infrastructure. In 1984, SEL introduced the world’s first commercially available digital relay, revolutionizing the protection of electrical systems. Since then, we have developed and manufactured products for the protection, monitoring, control, automation, measurement, and metering of electric power systems. We are 100 percent employee-owned and have been manufacturing our products in the United States since we were founded.

Managing supply chain risks is fundamental to ensuring the quality of our products. SEL’s Quality Management System is certified to the International Organization for Standardization (ISO) 9001 Quality Management Systems Standard. This certification is evidence that our critical design, manufacturing, and business processes meet the exacting requirements of this internationally recognized standard. Our manufacturing processes comply with the workmanship standard IPC-A-610 Class 3 for products requiring high reliability, such as those used in life-support and aerospace systems.

At SEL, our objective is not to just comply with existing standards, but to exceed them. We constantly identify, measure, and improve our processes so we can consistently surpass our customers’ expectations.

SEL's Quality Policy

At SEL, our quality policy is to “Understand, Create, and Simplify.” This represents our relentless pursuit of understanding opportunities and challenges, creating innovative solutions, and ensuring those solutions are simple and robust.