SOFTWARE OVERVIEW

ACSELERATOR ARCHITECT
ACSELERATOR Architect® SEL-5032
Software streamlines the configuration and documentation of IEC 61850 messages, controls, and reports.

ACSELERATOR QUICKSET
ACSELERATOR QuickSet® SEL-5030
Software is a tool to quickly and easily configure, commission, and manage devices for power system protection, control, metering, and monitoring.

ACSELERATOR BAY SCREEN BUILDER
ACSELERATOR® Bay Screen Builder
SEL-5036 Software enables the creation of custom bay screens for SEL devices with touchscreen displays.

SELE RTAC HMI
The SEL Real-Time Automation Controller (RTAC) HMI offers an easy way to visualize data to monitor and control your system.

ACSELERATOR DIAGRAM BUILDER
ACSELERATOR Diagram Builder™ SEL-5035
Software enables the creation and management of HMI visualization projects for the SEL RTACs in your system.

SYNCHROWAVE PDC
SEL-5073 SYNCHROWave® Phasor Data Concentrator (PDC) Software provides synchrophasor aggregation and time alignment for downstream applications and inter-entity data sharing.

ACSELERATOR TEAM
ACSELERATOR Team® SEL-5045 Software automates the collection of power system data from multiple devices and stores the data in a central location for easy access.

SYNCHROWAVE CENTRAL
SEL-5078-2 SYNCHROWave Central Software is a powerful solution for the display and analysis of time-synchronized synchrophasor data and relay event reports.

SYNCHROWAVE EVENT
SEL-5601-2 SYNCHROWave Event Software allows you to display and analyze SEL relay event reports and COMTRADE files.
Substation communications networks using the IEC 61850 Manufacturing Message Specification (MMS) and GOOSE protocols require a systemic methodology to configure message publications and subscriptions. Architect is a Microsoft® Windows® application that streamlines the configuration and documentation of IEC 61850 control and SCADA communications.

Simple Device Integration—Configure SEL devices in IEC 61850 installations using acSELErator QuickSet® SEL-5030 Software and Architect together. Architect provides a means to configure and document the IEC 61850 communications settings between SEL devices and devices from multiple manufacturers.

- Import and export Edition 1 and Edition 2 Substation Configuration Language (SCL) files to simplify system implementation.
- Detect and report errors by automatically comparing SCL files with the IEC 61850 requirements. SCL files include:
  - SCD—Substation Configuration Description.
  - ICD—IED Capability Description.
  - CID—Configured IED Description.
- Easily apply the software with:
  - Drag-and-drop functionality.
  - IED palette manager.
  - Tab orientation.
  - Diagnostic windows.
  - Settings wizard.
- Create and edit custom buffered and unbuffered MMS reports.
  - Configure the publications and subscriptions for IEC 61850 9-2LE Sampled Values.
  - Create and organize custom logical devices.

Server Model Editor—The SEL Real-Time Automation Controller (RTAC) includes MMS server capability that expands the RTAC’s very flexible data concentration capabilities. In systems where the RTAC needs to transmit SCADA data from various client protocol connections (such as SEL, Modbus®, or DNP3) in MMS messages, Architect includes the Server Model Editor for configuring MMS server instances in RTACs.

The Server Model Editor provides a graphical representation of the RTAC server model, which enables quick visualization and convenient editing tools for creating and maintaining MMS server applications.
QuickSet is a tool to quickly and easily configure, commission, and manage devices for power system protection, control, metering, and monitoring.

**Streamlined Settings Creation and Validation**—Automatically verify settings against the acceptable range as they are created to ensure the values are permitted. Also, you can improve the settings creation workflow by navigating the logical settings groups in QuickSet to quickly modify related device settings.

**Reduced Logic Design Time**—Generate custom logic with the Graphical Logic Editor (GLE). To simplify logic configuration in supported relays, QuickSet offers drag-and-drop tools for creating diagrams and SELogic® control equations specific to your application.

**Device Performance Monitoring**—Use the device HMI within QuickSet to manage and monitor system values. This is ideal for ensuring proper device performance during commissioning.

**Centralized Device Management**—Organize the numerous devices and their related data in a central location with the Device Manager plugin, enabling improved collaboration.

**Standardized New Device Deployment**—Reduce human error when deploying new devices by using the Template Palette. Using predefined templates that match your company’s standards makes it easy to configure new devices.

**Improved Configuration Collaboration**—When collaborating with coworkers, the Device Manager reduces the time spent with device configuration management and oversight by reconciling versions using the built-in compare tool.

**File Version Management**—Control versions of settings in a centralized database. The Device Manager lets you create setting baselines, generate comparison reports between setting versions, and meet regulatory requirements.
### QUICKSET SUPPORTED PRODUCTS

<table>
<thead>
<tr>
<th>Product</th>
<th>Earliest Z Number</th>
<th>Earliest Firmware</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEL-150*</td>
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<td>All</td>
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*Settings use the Legacy Grid settings editor.

For the most up-to-date list of supported products, visit [selinc.com/5030products](http://selinc.com/5030products).

### QUICKSET ORDERING OPTIONS

#### Ordering Options

<table>
<thead>
<tr>
<th>Description</th>
<th>Design Templates</th>
<th>Create settings templates for uniform device design.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device Management for Workgroups</td>
<td>Collaborative access to Device Manager data.</td>
<td></td>
</tr>
</tbody>
</table>

For the most up-to-date list of supported products, visit [selinc.com/5030products](http://selinc.com/5030products).
Bay Screen Builder is a Microsoft® Windows® application that lets you create custom bay screens for SEL devices with touchscreen displays. It works with QuickSet, enabling you to take control of bay screen design and management.

Try a free copy of Bay Screen Builder today by downloading it using SEL Compass®, available at selinc.com/products/compass.
SEL RTAC HMI
WEB-BASED HMI PACKAGE FOR RTACs

Starting Price
$1,750 USD

The SEL Real-Time Automation Controller (RTAC) supports an optional web-based HMI system that is well-suited for use in substations and for small processes. The SEL RTAC HMI offers an easy way to visualize data to monitor and control your system without special software.

Order the RTAC HMI as an option with new RTACs, or enable it via a field upgrade.

Situational Awareness and Control—Efficiently monitor and control substation performance and critical industrial processes. The RTAC HMI helps you detect changing system conditions, misoperations, and early warning signs so you can make informed real-time decisions as well as plan maintenance for improved system reliability.

Browser-Based Secure Local and Remote Access—Access the RTAC HMI locally or remotely via a web browser interface hosted on the web server on the RTAC unit. The HMI provides secure, role-based, authenticated access for multiple users from multiple locations. The HMI runtime system is rendered using the HTML5 standard; no plugins are required on compatible browsers.

All-in-One-Box Solution With SEL-3555 RTAC—Resolve your need for automation processing and HMI visualization with one box by using the integrated video and USB ports on the high-performance SEL-3555 RTAC for local display of the HMI.

Alarm Notification—Alert the operators when there is a problem by using the integrated Sequence of Events (SOE) viewer and customizable alarm annunciation.

Instant Feedback and Advanced Warning—Design trends dynamically in the HMI runtime system to display any value over time, enabling operators to be proactive and make more-informed control decisions.

SEL System Integration—Monitor, control, and analyze your system more efficiently with on-demand, secure, web-based access from anywhere, anytime.
Software

SEL-5035
ACCELERATOR DIAGRAM BUILDER™ SOFTWARE

Included With RTAC HMI Purchase

Diagram Builder is a Microsoft® Windows® application that enables the creation and management of HMI visualization projects in the SEL RTAC HMI for all of the SEL Real-Time Automation Controllers (RTACs) in your system.

Try a free copy of Diagram Builder by downloading it from the product webpage or by using SEL Compass®, available at selinc.com/products/compass.

Process Overview—Efficiently design process overview screens, which operators and engineers use more than any other screen type to rapidly gather information regarding the health of their processes. Diagram Builder includes predesigned graphical objects and freehand tools for easy screen development.

Substation Control—Provide consistent power system control screens using the dynamic power system objects loaded in Diagram Builder.

Alarm Management—Quickly lay out professional-quality, customized alarm screens with alarm management objects to provide the right alarm information at the right time.

Operation Improvement and Troubleshooting—Use the trend designer to predefine trend displays so system engineers can more easily understand process behaviors and perform detailed root cause analysis. Additionally, you can dynamically design trends in the HMI runtime system to display any value over time. These trends can help you avoid future system faults and failures.

Simplified Tag Mapping and Management—Import tags from an existing RTAC project using a simple user interface to save time and effort. You can quickly find the tag you need using an intuitive tag list in Diagram Builder.

SEL System Integration—Send a Diagram Builder project to an RTAC and access the HMI from anywhere with a network connection to the RTAC through a convenient web interface. The HMI runtime system is rendered using the HTML5 standard.

System Diagram Customization—Design every aspect of a diagram, such as the background, colors, and fonts. Layout tools help you keep it all organized.
SYNCHROWAVE® PHASOR DATA CONCENTRATOR (PDC) SOFTWARE

Starting Price
$4,000 USD

SYNCHROWAVE PDC provides synchrophasor aggregation and time alignment for downstream applications and inter-entity data sharing. It is both a flexible synchrophasor data routing solution and an archiving tool, configurable for both local and remote archiving.

Data Concentration—Concentrate up to 500 IEEE C37.118-2005 phasor measurement unit (PMU) inputs. Or you can bring a combination of PMU and PDC inputs into the SYNCHROWAVE PDC Software running on your Microsoft® Windows® PC and use it as a central system PDC. Up to six independent output streams are possible, letting you use applications like SEL-5078-2 SYNCHROWAVE Central Software to provide data to the independent system operator (ISO), neighboring utilities, or your own engineering and operations department.

Data Archiving—Archive PMU data locally on the PC where the software is installed, or configure the PDC to save data to a centralized backup archive. The software can record archives continuously or based on PMU trigger bits. Archived data are available in COMTRADE or CSV formats.

Secure Access—Obtain NERC CIP compliance support with individual user- and role-based account authentication, centralized user authentication using the Lightweight Directory Access Protocol (LDAP), strong passwords, and user access logs.

Disturbance Recording—Implement SYNCHROWAVE PDC as part of your NERC PRC-002-2 Disturbance Monitoring and Reporting solution. The software meets the dynamic disturbance recording requirement by archiving PMU data at a rate of 30 messages per second.

Centralized Data Server—Use SYNCHROWAVE PDC as your super PDC to provide synchrophasor data for applications like wide-area situational awareness, angle monitoring, system stability assessment, modal analysis, disturbance recording, and more.
TEAM automates the collection of power system data from multiple devices and stores the data in a central location for easy access. When something happens, whether it’s a relay trip, system fault, or security notification, TEAM is ready to help with continuous background monitoring, collection, notification, and storage. This ensures that the data are there when you need them to help discover root cause, maintain records for regulatory compliance, and keep your system running at peak efficiency.

TEAM operates as a set of Microsoft® Windows® services that continuously collect data from devices. All collected data are stored either in the acSELERATOR® Database (a PostgreSQL database) or at a specified disk location.

TEAM functionality is licensed as four popular feature sets: TEAM Event, TEAM Profile, TEAM Security, and TEAM Transmission Fault Location (TFL). You can select from the four feature sets to build a TEAM application that best suits your system needs.
TEAM EVENT

Team Event provides features and functions that make capturing, evaluating, and sharing event data easy. It automatically captures event data from supported SEL and third-party devices in CEV, COMTRADE, and Sequence of Events (SOE) formats. With Team Event, you can designate a query interval for Team to periodically query devices for new data. For enhanced data collection speeds, you can integrate Team with SEL Real-Time Automation Controllers (RTACs). An RTAC provides secure notifications to Team of new events and SOE data available for collection.

Oscillographic event data are beneficial for monitoring the system, fault analysis, and troubleshooting purposes. With the Web Viewer, Timeline Viewer, Event Viewer, and SOE Viewer in Team Event, you can quickly review oscillographic data and identify important events by type, device, location, or timeline.

Team Sync, included with Team Event, securely transports event and SOE data between database storage locations for automated data redundancy. Team Event can also notify appropriate individuals of new system events through Team's automatic email or SMS text messaging.

TEAM PROFILE

Load data profiling (LDP) information contains energy, demand, voltage, current, harmonic, and frequency trends that are useful when managing a large metered area. Team Profile automates the collection of LDP and voltage sag, swell, and interruption (VSSI) data from SEL-734 Revenue Meters, SEL-735 Power Quality and Revenue Meters, and SEL-751A Feeder Protection Relays. With the RTAC Trend Recorder library, you can record intelligent electronic device (IED) quantities, collect them with Team Profile, and trend recorded quantities with AcSERLErator Meter Reports SEL-5630 Software. You can view meter-generated data with Meter Reports to graph forensic data.

TEAM SECURITY

Use Team Security to automate password management and maintain a central repository of managed-device interactions and password reports for disaster recovery. Team Security works with the SEL-3620 Ethernet Security Gateway and the SEL-3622 Security Gateway to rotate device passwords on a set interval. When configured, Team Security also collects the device commands and the password management and syslog reports generated by the SEL-3620, SEL-3622, and SEL-3025 Serial Shield after new passwords are generated or on a specified interval.

TEAM TFL

Quickly restoring power after a system fault is a top priority. Team expedites accurate fault locating and can email or text results to appropriate individuals. Most digital protective relays or other IED use local or single-ended measurements to determine the fault location. To increase accuracy, Team TFL uses a two-terminal fault-locating method based on event information collected at the transmission line’s end terminals. When a fault occurs, Team TFL receives time-stamped event reports from IEDs or digital fault recorders (DFRs) at both terminals of a transmission line, checks to see if the events are associated with any of the configured lines, time-aligns the event records, and executes a two-terminal fault location algorithm.

Team works with multiple devices in a variety of configurations to meet your system needs.
SYNCHROWAVe Central provides power system situational awareness by translating data into visual information. It is a powerful solution for time-synchronized analysis of streaming data, archived data, and relay event data.

Real-Time Monitoring—Use SYNCHROWAVe Central to see transient behavior that is not visible with traditional SCADA systems that employ real-time, wide-area displays. Viewing power flows and angle differences across the entire system helps you understand system stress.

Situational Awareness—Improve visibility and understanding of the power system with trended charts, phasor diagrams, and geographical maps. You can customize and share user-specific views to display data. Alarms alert operators when the system approaches or exceeds critical thresholds.

Oscillation Detection—Improve power system stability by investigating detected power system oscillations. Email and alarm notifications alert operators and engineers to newly detected anomalies. SYNCHROWAVe Central identifies trends to help you quickly determine the location and impact of an oscillation.

System Analysis—Validate and improve system models and settings by using high-resolution synchrophasor data to compare measured system performance with modeled or expected performance. You can zoom in on system behavior and review archived data following an event. The powerful archive search function lets you quickly locate similar conditions.

Web Browser Access—Securely access SYNCHROWAVe Central from any computer connected to the network with individual user authentication. Redundancy with autofailover ensures continuous visibility of your power system.

GET TO ROOT CAUSE WITH SYNCHROWAVE EVENT
Correlate archived synchrophasor data with relay event data for additional insight when performing event analysis. Using the SEL-5601-2 SYNCHROWAVE Event Software tool that is built into SYNCHROWAVe Central, you can import, manipulate, and analyze relay event data.

Automatically include relay event data from all relays in the system by using event collection in acSELErator Team® SEL-5045 Software. SYNCHROWAVe Central lets you select one or more relay event reports of interest, adjust the time alignment, and/or perform mathematical calculations on the event data. Then, you can compare the event data to the synchrophasor measurement data captured before, during, and after the event.
**SYNCHROWAVE® EVENT SOFTWARE**

**Features**

**SYNCHROWAVE Event**

- Enhanced User Interface
- Analog Oscillography
- Digital Display
- Phasor Diagram
- Custom Calculation Engine
- Multiple Event Report Analysis
- Enhanced Signal Selection
- Harmonic Analysis
- Spectral Analysis
- Traveling-Wave Lattice Diagram
- Saved Configurations
- Mho Circle Analysis
- Alpha Plane Analysis

**Analytic Assistant**

- Requires time synchronization and matching sample rates.

*Requires time synchronization and matching sample rates.

`Analytic Assistant` is SEL’s legacy relay event report analysis software.

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**SYNCHROWAVE Event** generates Bewley lattice diagrams from traveling-wave data to enable visualization and analysis. For more information on traveling-wave fault locating, see the technical paper “Locating Faults by the Traveling Waves They Launch,” available at [selinc.com](http://selinc.com).

**See Traveling Waves**—Both the SEL-T400L Time-Domain Line Protection and the SEL-411L Advanced Line Differential Protection, Automation, and Control System can record traveling-wave data to provide a highly accurate fault location. synchroWAVE Event generates a Bewley lattice diagram from the traveling-wave data to enable visualization, analysis, and understanding of the traveling waves recorded for an event.

For more information on traveling-wave fault locating, see the technical paper “Locating Faults by the Traveling Waves They Launch,” available at [selinc.com](http://selinc.com).

**Analyse Relay Event Data**—Plot relay oscillography, display phasor magnitudes and angles, and monitor the digital status. You can navigate through events with integrated zoom and pan functions.

**Time-Align Event Reports**—Easily coordinate multiple event report times for accurate comparison and analysis of signals from multiple relays or past event reports.

**Perform Calculations**—Create equations to analyze specific trip conditions. For quick event analysis, you can instantly plot calculation results. The built-in function library offers endless calculation possibilities.

**Visualize Distance Elements**—Analyze protective relay distance element operation with the exact mho circle diagram. The diagram lets you plot and analyze apparent impedance and distance element characteristics.

**Save Analysis Setup Time**—Create personal and relay-specific analysis templates for a custom view into the relay’s operation. For more efficient post-event analysis, you can save and share templates.

**SYNCHROWAVE Event** helps diagnose a protective relay’s behavior during a power system fault. It is a powerful yet easy-to-use solution for displaying and analyzing SEL relay event reports and COMTRADE files.

**Starting Price**

$500 USD

[selinc.com/products/5601-2](http://selinc.com/products/5601-2)