SEL Real-Time Automation Controller (RTAC)

Product Family

Rugged, deterministic, and reliable automation controllers for any environment

- 1 ms deterministic processing intervals support critical protection and automation control.

- Integrated human-machine interface (HMI) with HTML5 technology provides comprehensive data visualization.

- Exe-GUARD™ whitelist antivirus technology allows only authorized applications to run.

- One software program for all RTACs reduces training and provides flexibility for any application.

SEL

SEL RTACs

Our RTAC product line is designed to provide you with simple solutions to full-scale automation. Each RTAC puts more data and real-time control at your fingertips for a more comprehensive system view and the ability to quickly address potential issues.

SEL RTACs offer everything from powerful data management solutions to precise, deterministic control in any location. Integrated cybersecurity features facilitate secure, mission-critical monitoring and control, while assuring regulatory compliance. Precise Time Protocol (PTP) and demodulated IRIG-B inputs synchronize the RTAC and connected intelligent electronic devices (IEDs) to absolute time. User-programmable processing rates and task priorities ensure critical operations run deterministically. In addition, all RTACs have the same user interface, allowing you to share projects across models using the common programming software.

With our ten-year worldwide warranty and unmatched technical support, any RTAC you choose is the right choice for high-speed, deterministic automation.

SEL-3555 RTAC

The Most Powerful RTAC Solution

The SEL-3555 RTAC is the most powerful RTAC solution for your most demanding applications. Whether it's in a substation or at the control center, the SEL-3555 allows you to manage and archive system data with up to 100,000 tags, view real-time information, and control devices. This combination of features, along with its ability to endure extreme environmental conditions, makes the SEL-3555 a flexible, reliable, and powerful solution for your most demanding substation automation projects.
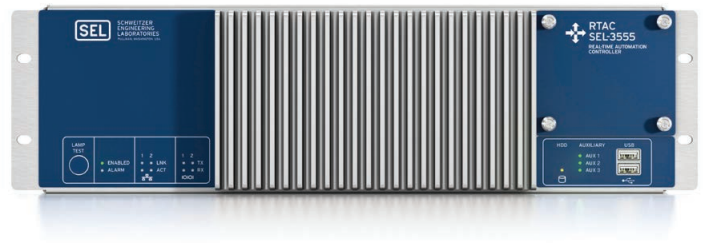
Mini Supervisory Control and Data Acquisition (SCADA)

As a central controller, the SEL-3555 can communicate between your substations, regulating and managing data for the entire system. The built-in video port brings high-quality control, annunciation, and alarm management via the integrated web HMI. With its advanced processing power, the SEL-3555 is ideal for many demanding applications, such as high-speed automation, synchrophasor processing, and distribution automation as well as integrating data from multiple substations.

Integrated Video Port for HMI

The RTAC HMI, with advanced HTML5 technology, provides an easy way to visualize data and create custom diagrams to monitor and control your system. The HMI allows authenticated access for multiple users and locations, and is viewable from a web browser. The video output port on the SEL-3555 RTAC can attach to any monitor, allowing you to quickly and locally view the HMI and Sequence of Events (SOE) data without the need for an additional computer.
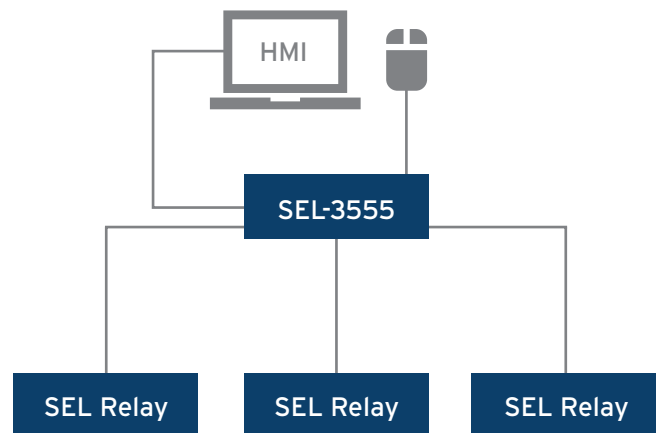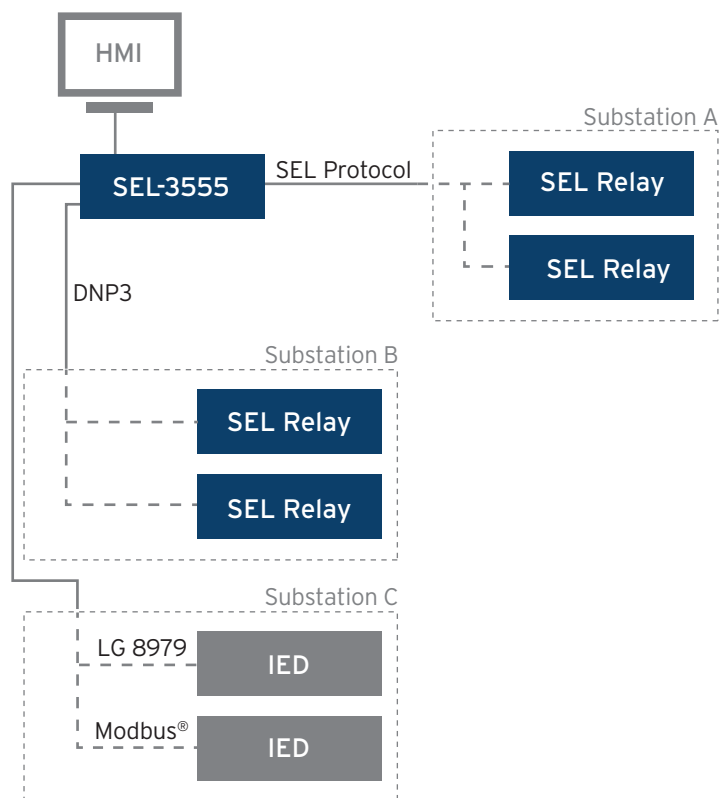
SEL-3530/3530-4 RTACs

The Standard in Substation Automation

The SEL-3530/3530-4 RTACs are the ideal controllers for substation data concentration and protocol conversion, and also give you the option of a web-based HMI for system visualization and control. These RTACs seamlessly interface with your IEDs, provide up-to-date communications back to your SCADA system or energy management system (EMS), and ensure secure engineering access from your desk to your protective relays in remote locations.

Power System Automation

As the "brains" inside your substation, the SEL-3530/3530-4 RTACs allow you to use the abilities of other devices, giving you a high-performance control and monitoring scheme. By bridging the connection between MIRRORED BITS® communications and IEC 61850 Generic Object-Oriented Substation Event (GOOSE) networks, these efficient automation controllers give you the most secure and reliable communications. With applications like directional element-based bus protection and replacement of tone-channel equipment for communications-assisted blocking, unblocking, permissive, and transfer-trip schemes, the SEL-3530/3530-4 RTACs provide an impressive deterministic automation platform solution.

Data Concentration and Engineering Access

The SEL-3530/3530-4 RTACs can operate as your data concentrator through several advanced, built-in client and server protocols, such as IEC 61850 MMS, Modbus®, DNP3, LG 8979, IEC 60870-5-101/104, and SEL protocols. The ability to integrate both serial and Ethernet IEDs allows a single RTAC in your substation to provide secure engineering access to the connected devices from a remote location so that you can conveniently configure your IEDs, monitor logs, and analyze diagnostics.
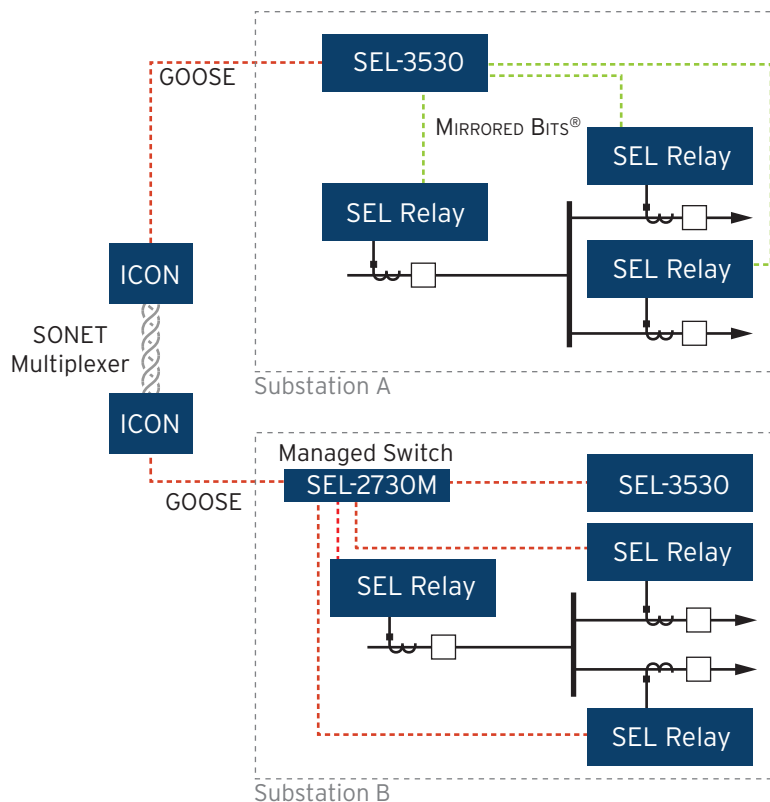
SEL-2240 Axion® Platform

Modular RTAC

Similar to all RTAC family members, this highly configurable, modular control platform is designed to operate continuously without error in the presence of extreme environmental conditions, such as electrical surges, humidity, and seismic activity. Use this platform as a remote terminal unit (RTU) replacement, industrial process controller, or phasor measurement unit. With unparalleled control, flexibility, and reliability, the Axion can be customized to suit any application.

Substation RTU

The Axion's versatility as an RTU allows you to gather digital and analog signals from remote locations. Then, with its variety of industry-standard protocols, you can distribute the data to a central SCADA system or HMI, providing efficient system-wide visibility.

Available Input/Output Modules

- Digital input module
- Digital output module
- Fast, high-current digital output module
- DC analog input module
- DC analog output module
- AC analog input module
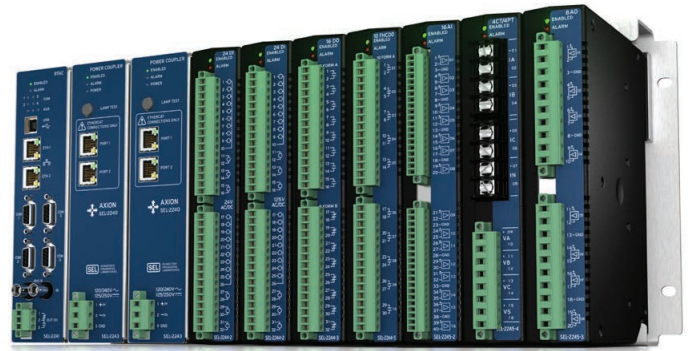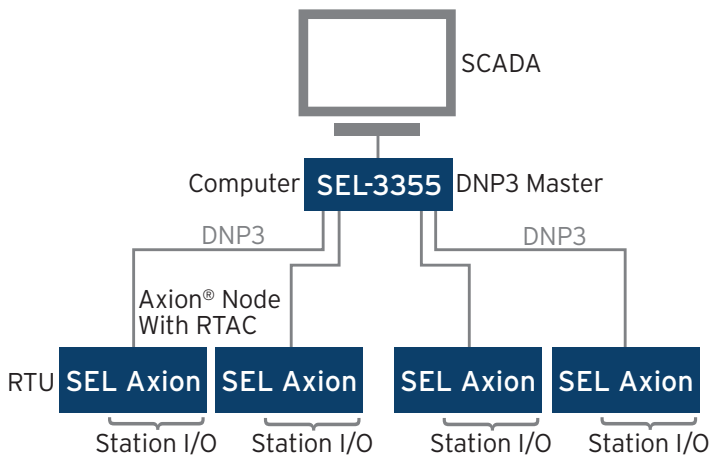
Autosynchronization

The Axion's multiple AC Metering Modules and I/O modules give you the ability to create advanced, highly scalable autosynchronization systems. Use the Axion to control governors and exciters to automatically synchronize generation with the power system. With synchronized sampling from multiple CT/PT modules, the algorithm for controlling governors and exciters can access the necessary time-aligned voltage magnitude, voltage angle, and frequency measurements in the same Axion system. This allows you to determine the right time to close a breaker in order to synchronize different islands of your power system with precision.
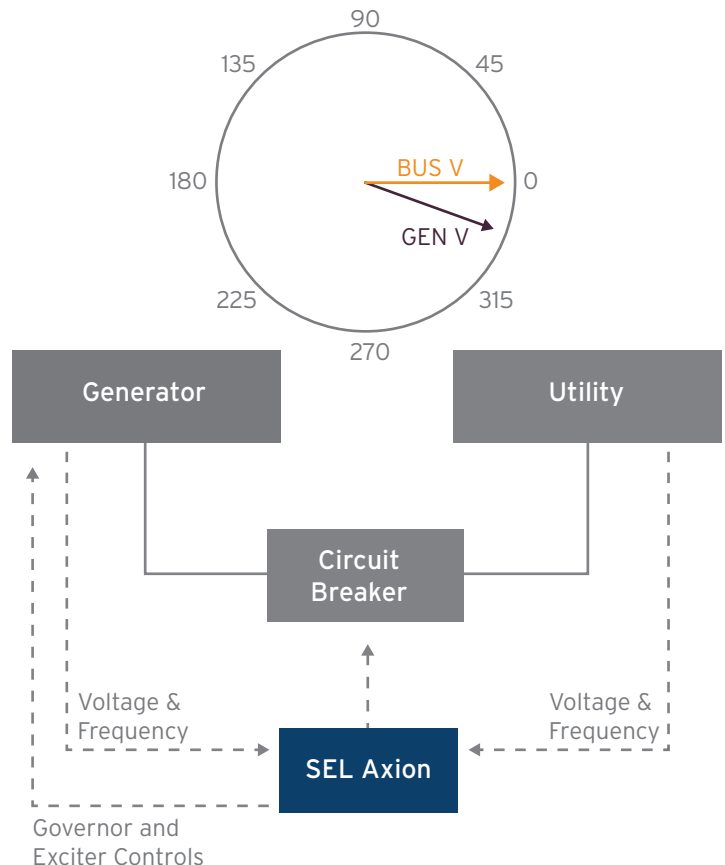
SEL-3505/3505-3 RTACs

Compact and Economical

These compact, economical RTACs are designed to fit in small enclosures, such as recloser controls, capacitor bank controls, and inverter cabinets. At just 6.93" x 5.54" x 2.25", these devices pack a range of capabilities into a small space. They can be used for protocol conversion, secure engineering access, localized control, and even as part of a distribution automation system. Even in the presence of harsh environmental conditions, the SEL-3505/3505-3 RTACs are highly capable and reliable.

Remote Engineering Access and SCADA Communications

The SEL-3505/3505-3 RTAC's compact size is ideal for small enclosure cabinets. Placing an RTAC in these cabinets can provide continuous monitoring and intrusion detection. Collect, measure, and organize data from both serial and Ethernet IEDs through several of the RTAC's standard protocols, such as Modbus, DNP3, and MIRRORED BITS communications. Use the SEL-3505 with the SEL-651R Advanced Recloser Control for remote engineering access, settings changes, and data collection. Its serial ports, dial-up modem, and high-speed network connection provide several ways to gain secure, remote access. In addition, the digital I/O in the SEL-3505-3 integrates with legacy recloser controllers to provide open/close status.
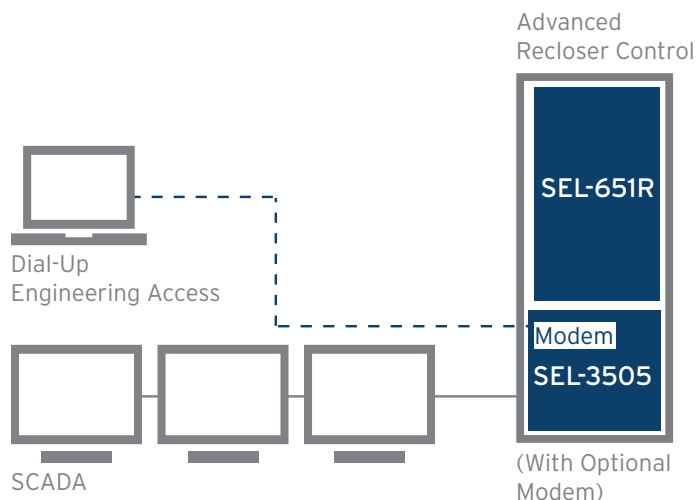
Distributed Generation

Use the IEC 61131-3 logic engine for creating customized algorithms that provide voltage and reactive power control for improved power quality. In the event of a fault, automated logic commands the photovoltaic (PV) inverter to trip off. During a seasonal or load change, use logic or directly send commands to the PV inverter to curtail or ramp down generation output. Install an RTAC at each of your inverters, gather operational and performance data, and send this integrated information to the control center for SCADA, control, and monitoring purposes.
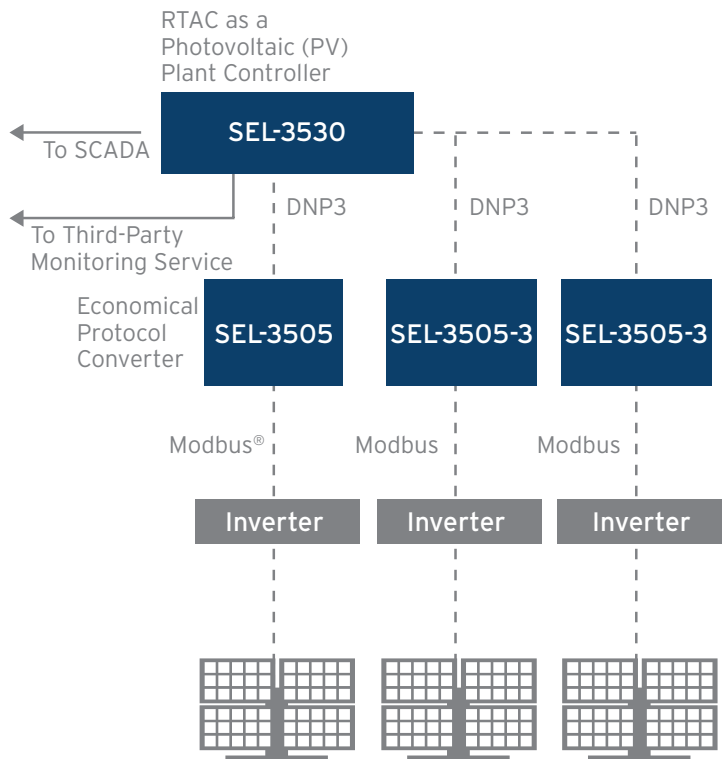
RTAC HMI

### Integrated Visualization and Control

The RTAC HMI allows you to visualize your substation electrical power system and includes the benefits of traditional SCADA and HMI packages. The web-based user interface allows one or more authenticated users to interface with customized HMI screens in a client-free environment. You get local or remote HMI access with the built-in web server, and fast information retrieval and display with the advanced HTML5 technology. Communication is performed via Hypertext Transfer Protocol Secure (HTTPS) web sessions. The RTAC HMI uses acSELerator Diagram Builder™ SEL-5035 Software, allowing you to quickly and easily design an integrated substation visualization and control system.

Visualize data over a defined period of time for trending and alarming purposes, both at the time of design and at run time. In addition, when you enter the IP address of the RTAC, all tags from the currently loaded acSELerator RTAC® SEL-5033 Software project will be automatically imported into Diagram Builder. This allows you to quickly design your custom HMI screens, load new HMI files into the RTAC, and view the HMI from any web browser on the network. You can also use the RTAC HMI to control devices, including opening breakers or switches and turning devices on or off.

SEL-3532/3533 RTAC Conversion Kit

Convert an SEL Computer Into an RTAC

The SEL-3532 Conversion Kit includes a CompactFlash® card that converts SEL-1102, SEL-3332, SEL-3351, and SEL-3354 Computers into RTACs. The SEL-3533 Conversion Kit includes a solid-state drive that converts SEL-3355 Computers into SEL-3555 RTACs. All modified RTACs will have the capabilities of the SEL-3530 RTAC along with an integrated video port for local HMI viewing.
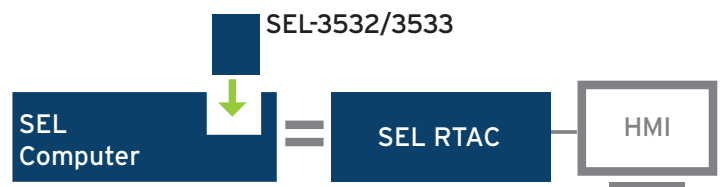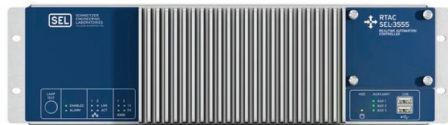
RTAC Family

The RTAC family of products addresses many application requirements based on location, size, and operational demands. By using a common user interface, users only need to learn a single programming software to build projects for any of the different models.

SEL-3555

SEL's Most Powerful Controller

- 2.5 GHz dual-core, 2.1 GHz quad-core processor with 8 GB RAM.
- Integrated display port with optional web-based HMI.
- EtherCAT® fieldbus client support is compatible with SEL Axion I/O modules.

Applications

Ideal for power management, including load shedding, synchrophasor vector processing, and remote or local visualization.

SEL-3530

Flexibility and Control for Substation Automation

- 533 MHz processor, 1 GB RAM.
- Available with web-based HMI option.
- EtherCAT fieldbus client support is compatible with SEL Axion I/O modules.

Applications

Ideal for concentrating information from relays in one central location and converting between protocols to send information to and from SCADA systems.
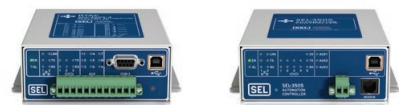
SEL-3530-4

Powerful Control in a Compact, Half-Rack Package

- 533 MHz processor, 1 GB RAM.
- Available with web-based HMI option.
- EtherCAT fieldbus client support is compatible with SEL Axion I/O modules.

Applications

Ideal for concentrating information from relays in one central location and converting between protocols to send information to and from SCADA systems.

SEL-3505/3505-3

Economical Control With Flexible Placement

- 333 MHz processor, 512 MB RAM.
- SEL-3505-3 provides 3 digital contact inputs and 8 digital contact outputs.

Applications

Ideal for a recloser control cabinet and as an inverter control for renewable applications.

SEL-2240 Axion

Modular Controller With Unparalleled System Uptime

- 533 MHz processor, 512 MB RAM.
- Available with web-based HMI option.
- EtherCAT fieldbus client support is compatible with SEL Axion I/O modules.

Applications

Ideal for RTU replacement, as an industrial process controller, and as a phasor measurement unit.

acSELerator RTAC SEL-5033

One Software Application for All RTACs

- Configure and deploy projects to the RTAC.
- Develop advanced IEC 61131 logic with the acSELerator RTAC Library Extensions. Use the Horizon™ libraries for wide-area monitoring and control.
- Download the software free of charge from selinc.com/SEL-5033.

SCHWEITZER ENGINEERING LABORATORIES

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