Modern Water Delivery Solutions [SEL]

SEL ruggedized solutions increase reliability and decrease maintenance costs.

| SEL-2411 | SEL-3354 and SEL-3530 | SEL-3031 | SEL-3505 | SEL-2925 |

Featured SEL products applied in modern water delivery include the SEL-2411 Programmable Automation Controller, SEL-3354 Embedded Automation Computing Platform (as a SCADA host), SEL-3530 Real-Time Automation Controller (RTAC), SEL-3031 Serial Radio Transceiver, SEL-3505 Automation Controller, and SEL-2925 BLUETOOTH® Serial Adapter.

System Functionality

- Real-time information available through BLUETOOTH connectivity on a tablet
- Precise control and accurate flow monitoring
- High-speed IEC 61131 programming capabilities

- Automatic closed-loop control
- Power management features
- Local, remote, and on-demand gate and flow control

Features and Benefits

Optimized Water Usage

Prevent water loss and crop damage with coordinated communications across multiple sites and accurate differential flow calculations. Use alarming functions to avoid flooding, and maximize the economical benefits of optimized irrigation.

Rugged, Customizable HMI With Keypad

SEL environmental testing assures that every system will perform in harsh agricultural environments. The optional HMI provides real-time feedback, allowing at-a-glance visibility and response to the changes in conditions that affect crop yields. Conformal coating is available for atmospheres where corrosive gases, fumes, or liquids are a concern.

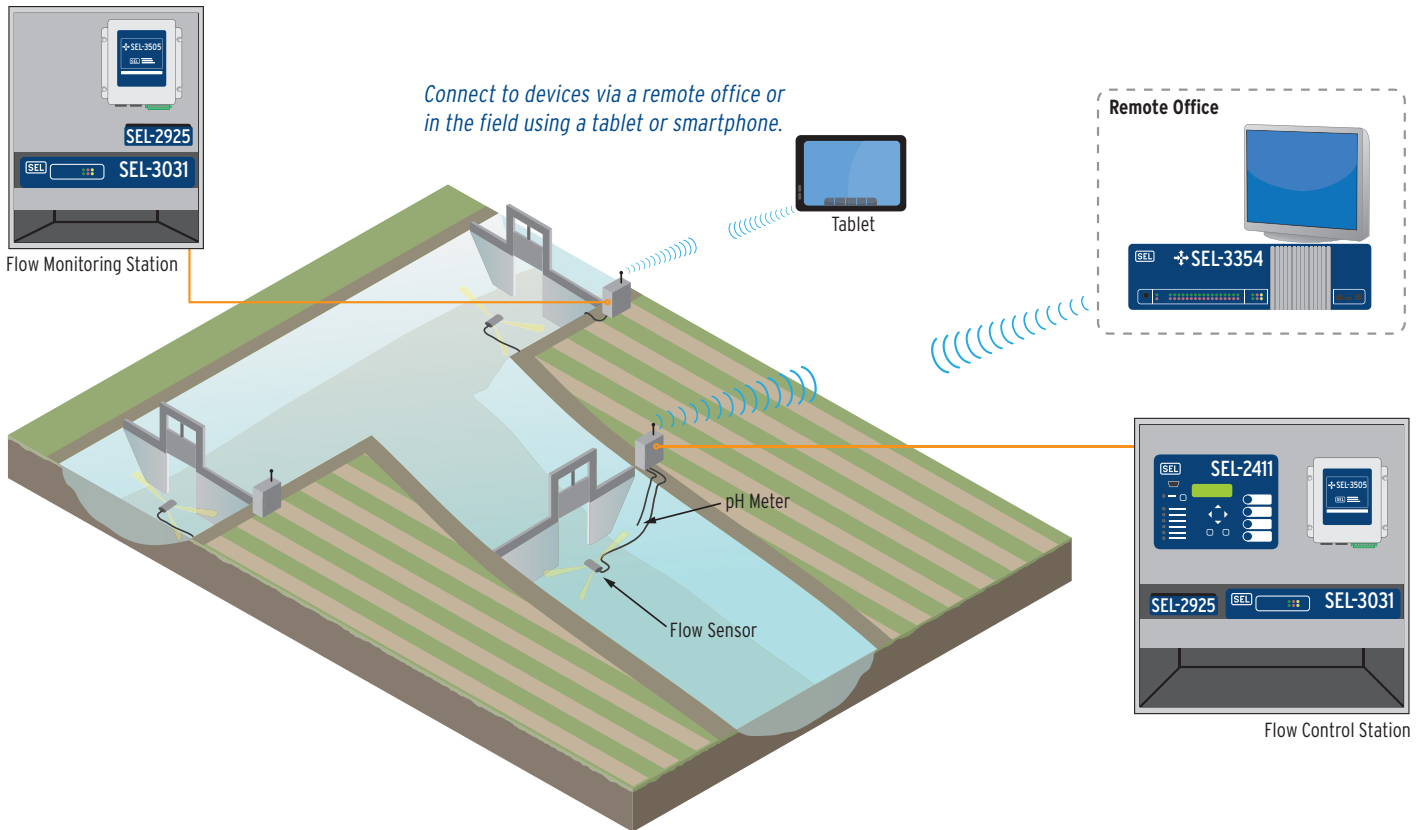### Low-Power Options/Self-Health Monitoring Solutions

SEL solutions have low power requirements, facilitating the use of solar and battery power for remote applications. The system monitors battery health and solar panel output, notifying operators when the power draw exceeds available solar and battery supply.

BLUETOOTH Option

This system can be ordered with an SEL-2925 BLUETOOTH Serial Adapter, which gives the user the flexibility to see real-time data on a portable computing tablet.

Making Electric Power Safer, More Reliable, and More Economical®

System Overview, SCADA Integration, and Secure Engineering Access

Connect to devices via a remote office or in the field using a tablet or smartphone.

Flow Monitoring Station

Tablet

Remote Office

pH Meter

Flow Sensor

Flow Control Station

- SEL solutions provide superior operation when compared to traditional RTUs by providing secure distributed control through programmable automation controllers, processors, and embedded computers with flexible communications options.
- Robust SEL radios ensure reliable and secure communication.
- SEL solutions offer the flexibility to solve unique challenges and customize the application to meet specific system needs.
- Comprehensive engineering services cover all aspects of the project, from concept through design to commissioning and support.

- AcSELERATOR QuickSet® SEL-5030 Software for configuration and programming comes with the system at no extra charge, and there are no recurring software license fees. SEL also supports customers with free technical support.
- System time synchronization across multiple sites can be accomplished with the SEL-2407® Satellite-Synchronized Clock, achieving precise, effective, and comprehensive system control.
- Single-vendor solutions provide single-point responsibility, optimize system design, and lower installation costs while reducing system complexity.

Data Visualization

View individual site information using the available application from your device in the field. Select from multiple sites, and gain the ability to view critical site information, such as flow rates, upstream and downstream levels, gate positions, flow and gate errors, alarm status, and auto run times.

Flow rate and level graphs provide an instant visual reference for quick and easy data gathering.
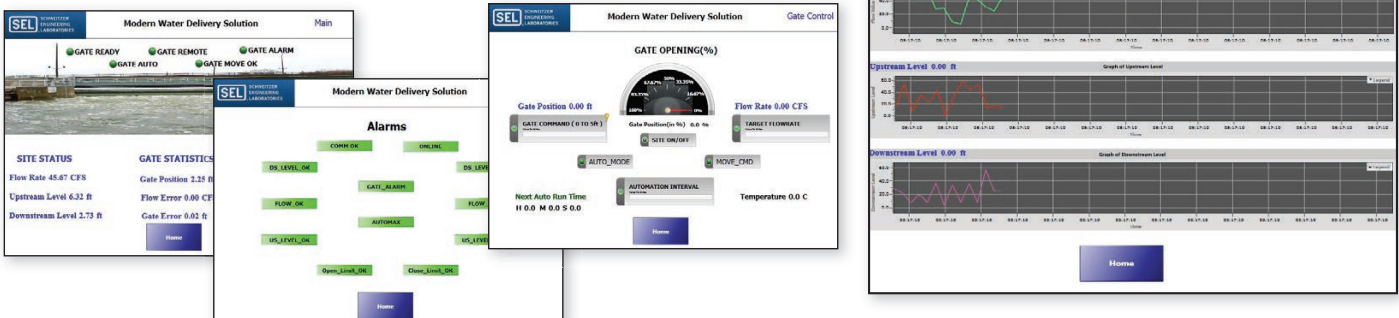
Design Features

- Same hardware for multiple sensor applications
- Simple, seamless configuration with robust software
- Built-in HMI means not having to purchase a separate one
- Optional protocols, such as Modbus®, DNP3, IEC 61850, MMS, and GOOSE

- Easily upgradable system
- Optional direct SEL-3010 Event Messenger support
- Modular structure

System Components

SEL-3031 Serial Radio

The SEL-3031 is a 915 MHz ISM serial data radio that supports point-to-point (P2P) and point-to-multipoint (P2MP) operational modes. In P2P mode, the SEL-3031 supports three serial data ports in one radio channel. The ports are completely independent and support a mix of protocols, including DNP3, Modbus®, MIRRORED BITS® communications, SEL Fast Message, plain ASCII, and more. In P2MP mode, a one-channel master radio communicates with multiple remote radios for SCADA or other data gathering applications. SEL Hop-Sync™ technology optimizes collocated radios applied as multiple point-to-point links or as active repeaters.

SEL-2411 and SEL-2440 Automation Controllers

Built and tested to meet mission-critical IEEE and IEC protective relay standards, SEL controllers employ fast and powerful control logic processors and communications capabilities for robust control system designs. The SEL-2411 Programmable Automation Controller easily integrates into SCADA systems to meet sequential events reporting, station integration, remote monitoring, ac metering, and plant control system needs. The SEL-2440 DPAC Discrete Programmable Automation Controller can be configured within scalable, encrypted, time-synchronized SEL networks that incorporate multiple facilities and high input/output (I/O) counts. With flexible communications and I/O options, these highly reliable control and monitoring systems are ideally suited to replace slower programmable logic controllers (PLCs) to sense pressures, temperatures, and fluid levels as well as to measure ac currents and voltages.

SEL ICON™ for Data Communications

The SEL ICON Integrated Communications Optical Network can support time-division multiplexing (TDM) and Ethernet traffic within single- or multiple-ring network topologies. This architecture and utility-grade reliability make the ICON ideal for SCADA applications. Additionally, the ICON includes data encryption and precise time distribution features to better manage power generation and distribution assets. The ICON separates different traffic types and executes ring network traffic switches in less than 5 milliseconds if a fiber-optic line should fail.

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System Components

SEL-3620 Ethernet Security Gateway

Designed and built in conjunction with the U.S. Department of Energy National SCADA Test Bed, the SEL-3620 Ethernet Security Gateway easily secures site-to-site Ethernet communications and protects private networks. The SEL-3620 installs quickly, operates with an intuitive, menu-driven web interface, supports up to 16 VPN connections, provides up to 60,000 security event reports, and applies an IRIG-B clock signal for precise event time tagging.

SEL-3530/SEL-3505 Information Processors

SEL information processors integrate power system protection, automation, communication, control, and monitoring with a variety of microprocessor-based devices. The SEL-3530 Real-Time Automation Controller (RTAC) includes SEL's simple, intuitive acSELerator RTAC® SEL-5033 Software to simplify power system design and integration. The embedded RTAC web interface speeds setup and monitoring of critical data, such as network access, user accounts, and system performance.

The SEL-3505 Automation Controller leverages the power and flexibility of the RTAC design and world class manufacturing, and provides a compact and powerful solution, allowing integrated IED access, monitoring, control, and logging through one reliable system. Additionally, you can use the SEL-3505 as a standalone logic processor.

SEL-2925 BLUETOOTH Serial Adapter

The SEL-2925 transmits data up to 115,200 bits per second to distances of 100 meters (300 feet) in typical applications with a clear line-of-sight communications path. For even greater distances, use directional gain antennas.

SEL-3354 Embedded Automation Computing Platform

The tough SEL-3354 is built to withstand harsh environments in utility substations and industrial control and automation systems. By eliminating all moving parts, including rotating hard drives and fans, and using error-correcting code (ECC) memory technology, SEL tough computers have over ten times the mean time between failures (MTBF) of typical industrial computers. Designed, manufactured, and tested to the same standards as our protective relays, every SEL-3354 comes with an unprecedented ten-year, worldwide SEL warranty.