

SEL-2411 Programmable Automation Controller (PAC)



Vibration (15 g Shock)



Electrostatic Shock (15 kV)



Heat (+85°C) / Cold (-40°C)



Features and Benefits

■ High Reliability and Low Price

The SEL-2411 is the ideal controller for mission-critical applications where controller failures are costly or damaging. Compare our superior specification compliance, higher reliability, lower price, and worldwide, ten-year warranty to PLC and RTU alternatives. It is ideal for local or remote monitoring and control of pumps and motors in hazardous locations, such as lift stations.

■ Flexible

Whether used for controlling a well, booster pump, lift station, or scum pit pump, or as an RTU replacement at an existing station, the flexible automation controller allows for a variety of options and communications protocols that facilitate local and remote monitoring and control.

■ Rugged Construction and Testing Requirements

SEL's environmental testing assures that every unit will perform in harsh water and wastewater environments. Conformal coating is an available option for atmospheres where corrosive gasses, fumes, or liquids are of greater concern.

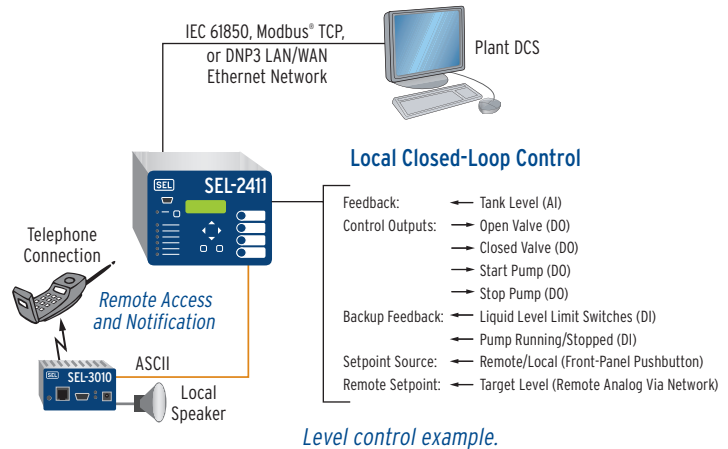
■ Customizable

Complete pump control and automation packages are available, which can be customized with options ranging from local touch-screen human machine interface (HMI), preprogramming, secure encrypted communications, and event notification via phone or SCADA system.

Local Control and Monitoring

Interact with SEL-2411 logic via front-panel pushbuttons for local control and monitoring.

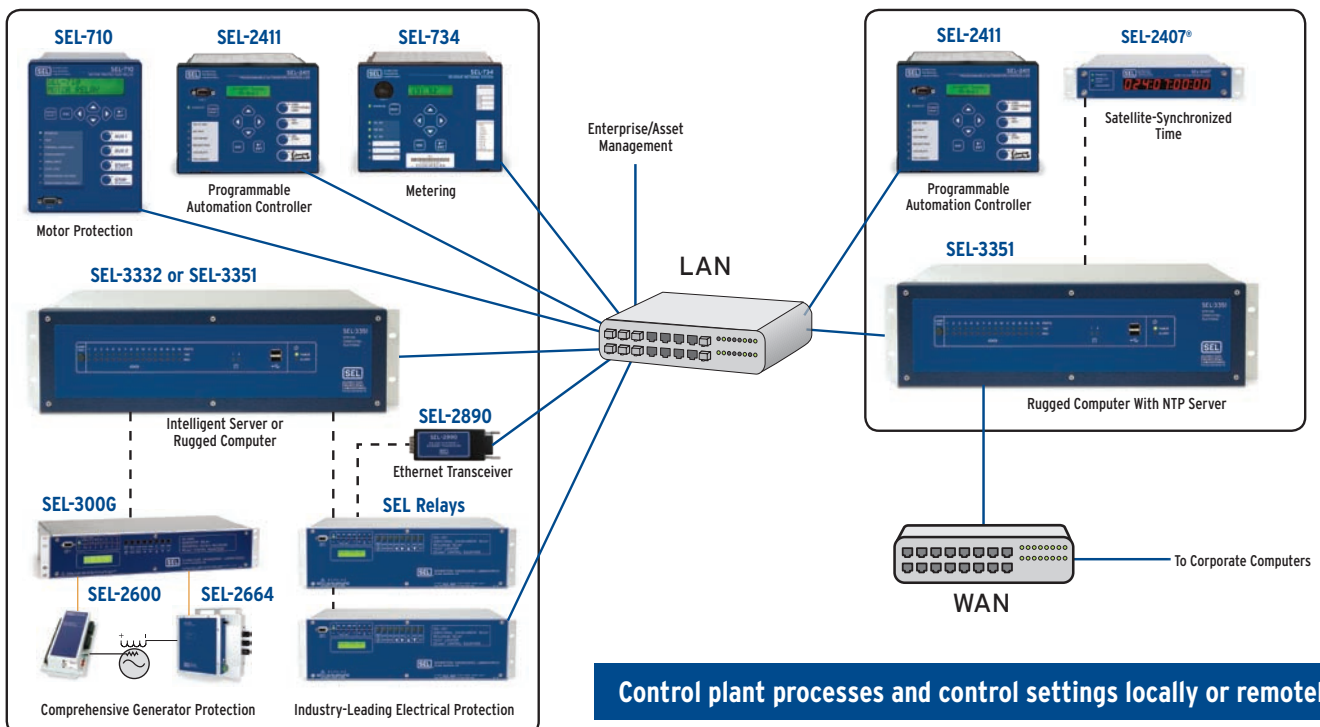
- Apply the built-in HMI without buying a separate HMI.
- Simplify operation by printing or writing labels for pushbutton and LED indicators to match your internal settings.
- Alert key personnel to problems automatically with direct SEL-3010 Event Messenger support.
- Perform control at specified times using an internal clock or time input (IRIG-B).



SCADA, Report Retrieval, and Secure Engineering Access

Use SEL communications processors, embedded computers, relays, remote I/O modules, and the SEL-2411 for higher reliability, lower cost, and more functions, instead of settling for an RTU. An RTU provides only remote I/O for SCADA, without the benefit of the other functions available in a distributed SEL system.

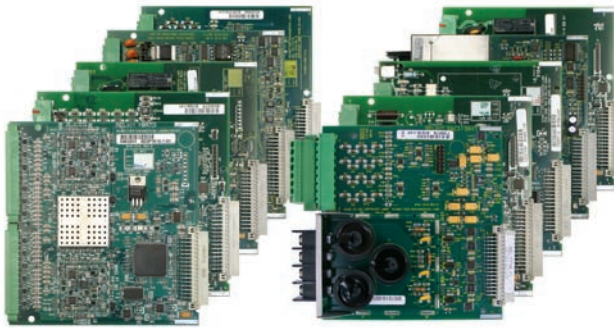
- Provide digital and analog I/O to SEL communications processors.
- Implement high-speed automatic control loops with SELogic® control equations using combinational logic, analog comparison, edge-trigger, and timer functions.
- Manage protection and control settings, retrieve and file power system event reports, time-tag changes to the nearest millisecond, and directly access devices for engineering maintenance.



Match Your Applications With SElect I/O Cards

Card Description	SElect I/O Card Designation	Maximum Cards Per SEL-2411
8 Analog Inputs	8 AI	4
4 Analog Inputs/4 Analog Outputs	4 AI/4 AO	2
8 Digital Inputs	8 DI	4
8 Digital Outputs	8 DO	4
4 Digital Inputs/4 Digital Outputs	4 DI/4 DO	4
4 Digital Inputs/3 Digital Outputs (2 Form C and 1 Form B)	4 DI/3 DO	4
10 RTD Inputs	10 RTD	1
4 AC Current Inputs	4 ACI	1
3-Phase AC Voltage Inputs	3 AVI	1
3 AC Current/3-Phase AC Voltage Inputs	3 ACI/3 AVI	1
EIA-232 or EIA-485 Port	EIA-232/EIA-485	1

Note: Unless otherwise specified, all digital outputs are Form A.

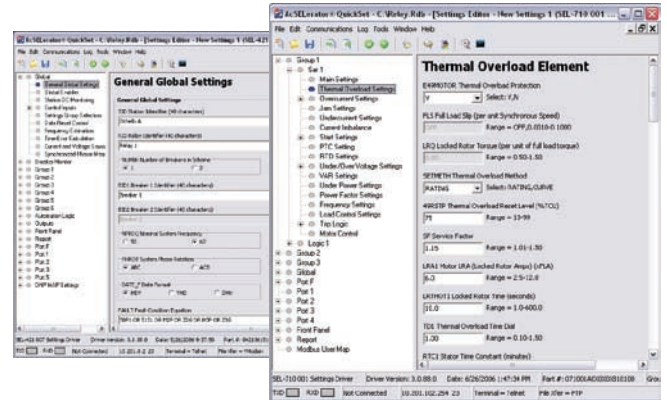


Complete family of SElect I/O cards.

Easily Program With acSELERATOR QuickSet®

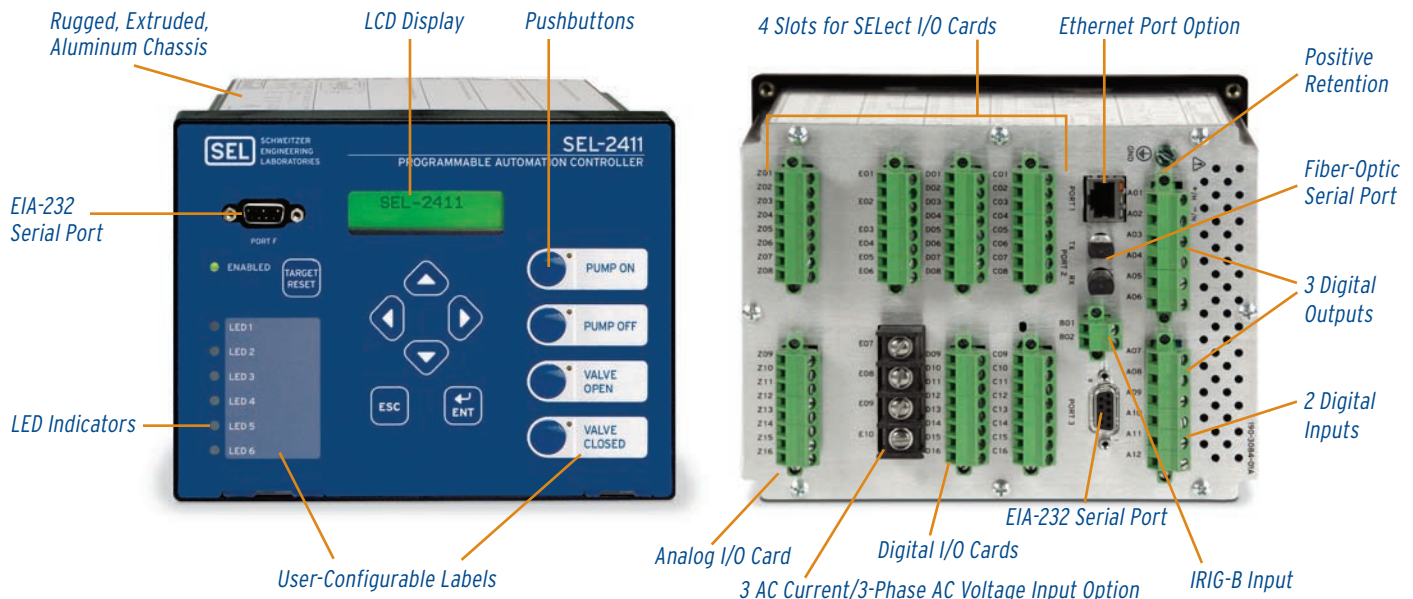
Streamline settings engineering and commissioning testing with acSELERATOR QuickSet SEL-5030 Software.

- Create and manage device settings.
- Develop settings offline with an intelligent settings editor that allows only valid settings.
- Create SELogic control equations with a drag-and-drop expression builder or a text editor.
- Organize settings with the device database manager.
- Load and retrieve settings using a simple PC communications link.
- Verify settings and analyze events.
- Test logic settings with the built-in logic simulator.
- Analyze system events with the integrated waveform analysis tool.
- Streamline monitoring, commissioning, and testing.
- Monitor analog data, device I/O, and logic point status during testing via the HMI.



Streamline settings development and commissioning with acSELERATOR QuickSet® SEL-5030 and acSELERATOR QuickSet Designer® SEL-5031 Software.

Front and Back Views



SEL-2411 Programmable Automation Controller (PAC)

General Specifications

Power Supply

Option	Range
24–48 Vdc	18–60 Vdc
110–250 Vdc, 110–240 Vac	85–264 Vac, 85–275 Vdc

Power Consumption

- <40 VA (ac)
- <15 W (dc)

Operating Temperature

- IEC performance rating of –40° to +85°C (–40° to +185°F)
- Class I Division 2 rating of –40° to +70°C (–40° to +158°F)

Dimensions

Height	144 mm (5.67 in)
Width	192 mm (7.56 in)
Depth	147.4 mm (5.8 in)

Plug-In Cards

Card Slots	4
Card Family	SElect I/O Cards

Serial Communications Ports

- Two EIA-232 ports
- Optional third EIA-232/EIA-485 port uses one SElect I/O card position
- Connectors 9-pin female
- Data Rate (bps) 300 to 38400
- Protocols SEL Fast Meter, SEL Fast SER, SEL MIRRORING BITS[®] communications, ASCII, Modbus[®] RTU, SEL Messenger Points for SEL-3010 Event Messenger
- Optional Protocol DNP3 Level 2 Outstation

Single or Dual Ethernet Ports

- 10/100BASE-T Wired Port
 - Connector Shielded RJ-45 female for Category 5 STP cable
 - Protocols Telnet, FTP, Modbus TCP
 - Optional Protocols DNP3 LAN/WAN, IEC 61850
- 100BASE-FX Fiber-Optic Port
 - Connector LC
 - Protocols Telnet, FTP, Modbus TCP
 - Optional Protocols DNP3 LAN/WAN, IEC 61850

Optional Fiber-Optic Serial Communications Port

Connectors	Two ST [®] connectors for 62.5 μm multimode fiber
Data Rate (bps)	300 to 38400
Protocols	SEL Fast Meter, SEL Fast SER, SEL MIRRORING BITS communications, ASCII, Modbus RTU
Optional Protocol	DNP3 Level 2 Outstation
Compatibility	Equivalent to built-in SEL-2812MR Fiber-Optic Transceiver
Rating	Class 1 LED Product IEC 60825-1:1993+A1:1997+A2:2001

Programmable Automation Logic

Logic Variables	64
Math Variables	64
Timers	64
Counters	32
Local Logic Points	32
Remote Control Points	32
Remote Analog Points	128
Latching Points	32
Logic Loop Execution	4.2 ms for 60 Hz ac 5.0 ms for 50 Hz ac
Analog Math Execution	100 ms

Quality Testing Specifications

Designed, built, and tested with the same practices, processes, and standards that we use for our protective relays, information processors, and other products. This includes compliance with IEEE and IEC standards for electrostatic discharge, fast transients, radiated emissions, surge-withstand capability, dielectric strength, pulsed magnetic fields, and disturbances. Refer to the SEL-2411 Data Sheet for detailed test data. Specifications and tests are per the ANSI/IEEE C37.90-1989 and IEC 60255 protective relay standards.

