Protection
Coordinate complex trip and close decisions to clear faults using data from up to 15 remote devices.

Integration
Communicate using SEL Mirrored Bits® communications, DNP3 Level 2 Slave, and SEL Fast Meter and Fast Operate protocols.

Automation and Control
Use local and remote information to dynamically control power system apparatus and switch relay settings groups. Apply Advanced Application Logic for high-speed control and fast reconfiguration to meet system needs.

Sequential Events Recorder
Stores status of up to 144 user-selected elements in more than 32,000 nonvolatile records.

Features and Benefits
**Functional Overview**

**SEL-2100 Logic Processor**

- Bidirectional High-Speed EIA-232 Ports
- Measured Bits² Communications Processor
- Advanced Application Logic
- User-Programmable AND, OR, NOT, Rising Edge, Falling Edge, Timers
- DNP3, ASCII, or Binary
- Link to Integrated System
- Front Port

**Fast Bus Trip Application Diagram**

1. Relay 1 trips to clear bus fault, faster than traditional feeder-coordination methods.

**Speed SEL-2100 Applications With acSELErator QuickSet® SEL-5030 Software**

- Save engineering time and decrease settings errors. Communicate with the SEL-2100 Logic Processors through any ASCII terminal, or use the acSELErator QuickSet graphical user interface.
- Develop settings offline with a menu-driven interface and complete help screens. Speed installation by copying existing settings files and modifying application-specific items.
- Simplify the settings procedure with rules-based architecture to automatically check interrelated settings. Out-of-range or conflicting settings are highlighted for correction.

**Use acSELErator QuickSet Designer® Feature for QuickSet Design Templates**

- Create custom views of settings, called QuickSet Design Templates with acSELErator QuickSet Designer. This makes installation of a new device simple and helps ensure that new devices are applied according to your organization’s standards. For example, rename, hide, lock, or calculate selected settings.
- Import and use the custom templates with acSELErator QuickSet Software. Each device requires few user entries because the template hides the standardized, unused, and application-specific settings.
**Advanced Application Logic**

**Advanced Application Logic Modules**
The SEL-2100 can be ordered with optional logic modules, called Advanced Application Logic. For special applications, SEL engineers can deliver custom high-speed logic applications as Advanced Application Logic in Logic Processors. The first standard module available from SEL is the Crosspoint Switch (CPS) Advanced Application Logic.

**CPS Advanced Application Logic**
The CPS table below is an array of bits (32 rows by 128 columns). Rows correspond to logic variables in the SEL-2100 (Row 1 to LV1, Row 2 to LV2, etc.) and are the inputs to the CPS logic. Columns correspond to SEL-2100 Transmit Mirrored Bits outputs for Ports 1–16 and 8 logic points (LP9–LP16). Connect the inputs to the outputs by enabling switch cells (the light-blue cells of the CPS table below) using SEL Fast Message commands. SEL communications processors or rugged computers quickly change the CPS switch-cell assignments through SEL Fast Messages.

<table>
<thead>
<tr>
<th>Bits</th>
<th>Port 1</th>
<th>Port 15</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 1 2 3 4 5 6 7</td>
<td>112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127</td>
</tr>
<tr>
<td>LV1</td>
<td></td>
<td>***</td>
</tr>
<tr>
<td>LV2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LV31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LV32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relay Word Bit</td>
<td>T8 P1</td>
<td>T7 P1</td>
</tr>
</tbody>
</table>

*Receive Mirrored Bits elements and other logic points are combined in each logic variable and then routed to the Transmit Mirrored Bits elements on each port, based upon the enabled switch cells (the light-blue cells) in the CPS table. In this example, when LV1 asserts, the SEL-2100 asserts Port 1 TMB1 (T1P1) and Port 15 TMB3 (T3P15). When LV31 asserts, the SEL-2100 asserts Port 15 TMB8 (T8P15).*

SEL engineers initially applied the CPS Advanced Application Logic to implement an optimal, adaptive load-shedding system for a large refinery. Software in an SEL rugged computer uses SEL Fast Messages to rapidly redefine the intersection points in the matrix to change the load-dropping priorities to match plant conditions.
## General Specifications

### Rear Serial Data Ports 1–16
- **Interface**: EIA-232 + IRIG-B
- **Connector**: 9-pin female, DTE
- **Speed**: 300 to 38400 bits per second
- **Protocols**: Mirrored Bits communications (ports 1–15 only), DNP3, SEL ASCII, SEL Fast Messages (Only one port can be set to DNP3)

### Front Serial Port
- **Interface**: EIA-232
- **Connector**: 9-pin female, DTE
- **Speed**: 300 to 9600 bits per second
- **Protocol**: SEL ASCII

### Rear Time-Code Input
- **Connector**: Female BNC
- **Time Codes**: Modulated or demodulated IRIG-B

### Sequential Events Recorder
- **Programmable SER Triggers**: 144
- **Time-Stamped Records**: 32000

### Rear Digital I/O
- **Base Unit**
  - **Alarm Output**: 1
- **Optional I/O**
  - **Digital Outputs (DO)**: 4
  - **Digital Inputs (DI)**: 16
  - **DI Voltages**: 24, 48, 110, 125, 250 Vdc or Vac

### Front-Panel HMI
- **1 lamp test pushbutton**
- **LEDs**
  - 17 green transmit data (TXD)
  - 17 red receive data (RXD)
  - 1 red ALARM

### SELLogic Control Equations
- **Elements**: 1030
- **Edges**: 216
- **Remote Bits**: 64
- **Logic Variables**: 32

### Substation- and Plant-Grade Equipment
Designed, built, and tested with the same practices, processes, and standards that are used for SEL protective relays, communications processors, and other products.