# SEL-411L-2 With Sampled Values or TiDL Technology

Current Differential Relay with full Distance Backup Protection

**NOTE:** When applying the SEL-411L relay in line current differential applications, relays at all terminals of a protected line must use firmware that is compatible as shown in Table A.1.

<table>
<thead>
<tr>
<th>Part Number:</th>
<th>0 4 1 1 L 2 X 4 X X</th>
</tr>
</thead>
</table>

## Firmware

- **Standard Current Differential and Distance Elements Plus Sub-cycle Distance Elements and Series Compensation Logic**
  - 2

## Connector Type

- **None**
  - X X X E 4 X X X
- **Time-Domain Link (TiDL)**:
  - R X X 4 X X X

## Conformal Coat

- **None**
  - X
- **Conformally Coated Circuit Boards**
  - 1

## Power Supply

- **24-48 Vdc**
  - 2
- **48-125 Vdc or 110-120 Vac**
  - 4
- **125-250 Vdc or 110-240 Vac**
  - 6

## Serial Line Current Differential Communications Channel 1

- **None**
  - 0
- **Isolated EIA-422**
  - A
- **Isolated G.703 Co-Directional**
  - B
- **850 nm IEEE C37.94 Fiber**
  - C
- **1300 nm Fiber**
  - D
- **1550 nm Fiber**
  - E
- **1300 nm IEEE C37.94 Fiber**
  - H

## Serial Line Current Differential Communications Channel 2

- **None**
  - 0
- **Isolated EIA-422**
  - A
- **Isolated G.703 Co-Directional**
  - B
- **850 nm IEEE C37.94 Fiber**
  - C
- **1300 nm Fiber**
  - D
- **1550 nm Fiber**
  - E
- **1300 nm IEEE C37.94 Fiber**
  - H

## Ethernet Communications Protocols

- **FTP, Telnet, Synchronphasors, and DNP3**
  - B
- **FTP, Telnet, Synchronphasors, DNP3, and IEC 61850**
  - C
- **FTP, Telnet, Synchronphasors, DNP3, and IEC 61850 with Sampled Values Subscription**
  - E
**Ethernet Connection Options**

<table>
<thead>
<tr>
<th>Options</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Four 10/100BASE-T Connectors</td>
<td>6</td>
</tr>
<tr>
<td>Four 100BASE-FX Connectors*</td>
<td>7</td>
</tr>
<tr>
<td>Two 10/100BASE-T and Two 100BASE-FX Connectors*(5)*</td>
<td>8</td>
</tr>
</tbody>
</table>

**Mounting**

<table>
<thead>
<tr>
<th>Mounting</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Rack Mount</td>
<td>H</td>
</tr>
<tr>
<td>Horizontal Panel Mount</td>
<td>3</td>
</tr>
<tr>
<td>Vertical Rack Mount</td>
<td>V</td>
</tr>
<tr>
<td>Vertical Panel Mount</td>
<td>4</td>
</tr>
</tbody>
</table>

**Chassis**

<table>
<thead>
<tr>
<th>Chassis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4U, One I/O Board</td>
<td>4</td>
</tr>
</tbody>
</table>

**I/O Board Position B for 4U Chassis**

<table>
<thead>
<tr>
<th>I/O Board Position B for 4U Chassis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Optoisolated Independent Level-Sensitive Inputs, 13 Standard Form A, 2 Standard Form C Outputs*</td>
<td>2</td>
</tr>
<tr>
<td>18 Common Inputs, 6 Independent Inputs, 6 High-Speed High-Current Interrupting Form A Outputs, 2 Standard Form A Outputs*</td>
<td>4</td>
</tr>
</tbody>
</table>

**I/O Board Position B Input Voltage**

<table>
<thead>
<tr>
<th>I/O Board Position B Input Voltage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>24 Vdc</td>
<td>1</td>
</tr>
<tr>
<td>48 Vdc</td>
<td>2</td>
</tr>
<tr>
<td>110 Vdc</td>
<td>3</td>
</tr>
<tr>
<td>125 Vdc</td>
<td>4</td>
</tr>
<tr>
<td>220 Vdc</td>
<td>5</td>
</tr>
<tr>
<td>250 Vdc</td>
<td>6</td>
</tr>
</tbody>
</table>

**Accessories**

<table>
<thead>
<tr>
<th>Literature</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction Manual Set for SEL-411L-2 (6)</td>
<td>P M 4 1 1 L - K T - 0 2</td>
</tr>
</tbody>
</table>

* Additional Cost

(1) Sampled values subscriber relays have no analog input boards and instead receive voltages and current through Ethernet.

(2) Not compatible with Axion based TiDL systems.

(3) Line current differential protection requires serial line differential communication options.

(4) IEEE Precision Time Protocol (PTP) is only available on Ports 5A, 5B.

(5) Ports 5A and 5C are dedicated as 100BASE-FX and Ports 5B and 5D are dedicated as 10/100BASE-T.

(6) This product comes standard with a CD manual. One complimentary instruction manual kit is available upon request with each product purchased.

**Table A.1**

<table>
<thead>
<tr>
<th>411L-2 Firmware Version</th>
<th>411L-2 Firmware is Compatible with</th>
<th>411L-0/1 Firmware is Compatible with</th>
</tr>
</thead>
<tbody>
<tr>
<td>R200 and Higher</td>
<td>R200 and Higher</td>
<td>R128 and Higher</td>
</tr>
</tbody>
</table>

---

Making Electric Power Safer, More Reliable, and More Economical

---

SCHWEITZER ENGINEERING LABORATORIES, INC.
2350 NE Hopkins Court - Pullman, WA 99163 USA
Phone: +1.509.332.1890 - Fax: +1.509.332.7990