**SEL-411L**  
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</th>
<th>X</th>
</tr>
</thead>
</table>

**Firmware**

| Standard Current Differential and Distance Element | 0 |
| Standard Plus Sub-cycle Distance Elements, Series Compensation Logic and Traveling-Wave Fault Location* | 1 |

**Conformal Coat**

| None | X |
| Conformally Coated Circuit Boards* | 2 |

**Power Supply**

| 48-125 Vdc or 110-120 Vac | 4 |
| 125-250 Vdc or 110-240 Vac | 6 |

**Connector Type**

| Screw Terminal Block | X |
| Connectorized® Relay(5)* | 2 |

**Secondary Inputs**

| 300 V Phase - Neutral Maximum (Wye), 1 A Phase | 1 |
| 300 V Phase - Neutral Maximum (Wye), 5 A Phase | 5 |

**Ethernet Communications Protocols and 87L Line Current Differential**

| None | X | X |
| FTP, Telnet, Synchrophasors and DNP3 LAN/WAN(1) | B |
| FTP, Telnet, Synchrophasors, DNP3 LAN/WAN and IEC 61850(1)* | C |

**Ethernet Connection Options**

| None | X | X |
| Four 10/100BASE-T Connectors(1)* | 6 |
| Four 100BASE-FX Connectors(1)* | 7 |
| Two 10/100BASE-T and Two 100BASE-FX Connectors(1)(4)* | 8 |

**Serial Line Current Differential Communications Channel 1**

| None(2) | 0 | 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

<table>
<thead>
<tr>
<th>None&lt;sup&gt;(2)&lt;/sup&gt;</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Isolated EIA-422*</td>
<td>A</td>
</tr>
<tr>
<td>Isolated G.703 Co-Directional*</td>
<td>B</td>
</tr>
<tr>
<td>850 nm IEEE C37.94 Fiber*</td>
<td>C</td>
</tr>
<tr>
<td>1300 nm Fiber*</td>
<td>D</td>
</tr>
<tr>
<td>1550 nm Fiber*</td>
<td>E</td>
</tr>
<tr>
<td>1300 nm IEEE C37.94 Fiber*</td>
<td>H</td>
</tr>
</tbody>
</table>

### Mounting

- **Horizontal Rack Mount**: H
- **Horizontal Panel Mount**: 3
- **Vertical Rack Mount**: V
- **Vertical Panel Mount**: 4

### Chassis

- **4U, One I/O Board**: 4 X X X X
- **5U, Up to Two I/O Boards**: 5 X X
- **6U, Up to Three I/O Boards**: 6

### I/O Board Position B for 4U, 5U or 6U Chassis

<table>
<thead>
<tr>
<th>8 Optoisolated Independent Level-Sensitive Inputs, 13 Standard Form A, 2 Standard Form C Outputs*</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Optoisolated Independent Level-Sensitive Inputs, 13 High-Current Interrupting Form A, 2 Standard Form C Outputs*</td>
<td>7</td>
</tr>
<tr>
<td>24 Optoisolated Level-Sensitive Inputs, 2 Standard and 6 High-Speed High-Current Interrupting Form A Outputs*</td>
<td>C</td>
</tr>
<tr>
<td>24 Optoisolated Level-Sensitive Inputs, 8 Standard Form A Outputs*</td>
<td>D</td>
</tr>
<tr>
<td>8 Optoisolated Independent Level-Sensitive Inputs, 8 High-Speed High-Current Interrupting Form A Outputs*</td>
<td>E</td>
</tr>
</tbody>
</table>

### I/O Board Position B Input Voltage

<table>
<thead>
<tr>
<th>48 Vdc</th>
<th>2</th>
</tr>
</thead>
<tbody>
<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>

### I/O Board Position C for 5U or 6U Chassis

<table>
<thead>
<tr>
<th>Empty I/O Board Position</th>
<th>0 X X X</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>8 Optoisolated Independent Level-Sensitive Inputs, 13 High-Current Interrupting Form A, 2 Standard Form C Outputs*</td>
<td>7</td>
</tr>
<tr>
<td>24 Optoisolated Level-Sensitive Inputs, 2 Standard and 6 High-Speed High-Current Interrupting Form A Outputs*</td>
<td>C</td>
</tr>
<tr>
<td>24 Optoisolated Level-Sensitive Inputs, 8 Standard Form A Outputs*</td>
<td>D</td>
</tr>
</tbody>
</table>
8 Optoisolated Independent Level-Sensitive Inputs, 8 High-Speed High-Current Interrupting Form A Outputs*

I/O Board Position C Input Voltage

<table>
<thead>
<tr>
<th>Voltage</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>48 Vdc</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>220 Vdc</td>
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<td></td>
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<tr>
<td>250 Vdc</td>
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<td></td>
</tr>
</tbody>
</table>

I/O Board Position D for 6U Chassis Only

<table>
<thead>
<tr>
<th>Position</th>
<th>0</th>
<th>X</th>
<th>2</th>
<th>7</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty I/O Board Position</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Optoisolated Independent Level-Sensitive Inputs, 13 Standard Form A, 2 Standard Form C Outputs*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Optoisolated Independent Level-Sensitive Inputs, 13 High-Speed Interrupting Form A, 2 Standard Form C Outputs*</td>
<td></td>
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<td>24 Optoisolated Level-Sensitive Inputs, 2 Standard and 6 High-Speed High-Current Interrupting Form A Outputs*</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 Optoisolated Level-Sensitive Inputs, 8 Standard Form A Outputs*</td>
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<td></td>
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<tr>
<td>8 Optoisolated Independent Level-Sensitive Inputs, 8 High-Speed High-Current Interrupting Form A Outputs*</td>
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</tr>
</tbody>
</table>

I/O Board Position D Input Voltage

<table>
<thead>
<tr>
<th>Voltage</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>48 Vdc</td>
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<td></td>
</tr>
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<tr>
<td>250 Vdc</td>
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</table>

Accessories

<table>
<thead>
<tr>
<th>Literature</th>
<th>Instruction Manual Set for SEL-411L and SEL-400 Series</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P M 4 1 1 L - K T - 0 1</td>
</tr>
<tr>
<td>Wiring Harness</td>
<td>Wiring Harness for Connectorized SEL-411L (harness shipped separately)</td>
</tr>
<tr>
<td></td>
<td>Please see Online MOT or contact SEL REP or CSR for ordering information.</td>
</tr>
</tbody>
</table>

* Additional Cost

(1) Ports 5A and 5B can be configured for line current differential communication or for IEEE Precision Time Protocol (PTP). If PTP is enabled, 87L over Ethernet will be performed on Ports C, D instead of A, B. PTP is only available on Ports A, B.
(2) Line current differential protection requires serial line differential communication options.
(3) This product comes standard with a CD manual. One complimentary printed instruction manual kit is available upon request with each product purchased.
(4) Ports 5A and 5C are dedicated as 100BASE-FX and Ports 5B and 5D are dedicated as 10/100BASE-T.
(5) Order a Connectorized® Wiring Harness for SEL-411L (harness shipped separately).

Table A.1

<table>
<thead>
<tr>
<th>Firmware Version</th>
<th>Firmware is compatible with:</th>
</tr>
</thead>
<tbody>
<tr>
<td>R101 - R107</td>
<td>R101 - R107</td>
</tr>
<tr>
<td>R108 - R123-V1</td>
<td>R108 - R123-V1</td>
</tr>
<tr>
<td>R124 and higher</td>
<td>R124 and higher</td>
</tr>
</tbody>
</table>