T2500 3 Phase Overcurrent and Short Circuit Relay Relay

- Protection of generators against overcurrent and short circuit
- Price competitive, due to the combined functions
- Visual indication of power, pick-up and relay tripping on both relays
- High precision digital countdown timer for delayed output
- Normal function upon loss of supply due to built-in energy source
- Accepts high supply voltage variations: 60 - 110%
- Cost effective and highly reliable compact design
- 50 hours burn-in before final test
- Certified by major marine classification societies
- Flame retardant enclosure

Application
The combined T2500 3 Phase Overcurrent and Short Circuit Relay is intended as a protection relay for generators, power transmissions and consumer’s supply by tripping the main circuit breaker. The short circuit relay protects against faults causing high currents and the overcurrent relay protects against thermal damage.

The T2500 is part of the SELCO T-Line series with modular units for protection, control and monitoring of generators, both in marine and land-based applications. The T2500 is type approved by major marine classification societies.

Function
The T2500 consists of two circuit parts, fundamentally alike, but with different current settings and time delays. Each circuit part detects the highest of the 3 input currents and, if this exceeds the preset level (1 - 4 x IN or 0.5 - 1.4 x IN), the corresponding pick-up LED will indicate and the delay timer will be started. After the preset time (0.1 - 1 sec. or 3 - 30 sec.) has expired, the combined normally energized output relay will de-energize and the corresponding relay LED will be activated, provided that the current level was exceeded for the entire delay time.

The T2500 has a normally energized output relay and it contains an energy source, sufficient for supply during the maximum short circuit time delay, ensuring normal function and safe operation, even upon loss of supply voltage.

The T2500 can be supplied with an extra output relay (normally de-energized). See connection diagram.

Installation
The supply voltage is connected to terminals 1 and 3 or terminals 2 and 3, according to the supply source.

The T2500 is connected to the measuring current coming from the current transformers secondary via terminals 11-12, 13-14 and 15-16. See connection diagram.

The current setting can be calculated according to the following example:

Overcurrent trip level: 110%.
Generator rating: 695A.
Current transformer: 800/5A.
Setting: 110 x 695/800 = 96% = 0.96 x Iₚ

Short circuit trip level: 300%.
Generator rating: 695A.
Current transformer: 800/5A.
Setting: 300 x 695/800 = 261% = 2.6 x Iₚ

Latching output relays can be reset or disabled by bridging terminals 5 and 6.
Specifications

T2500 3 Phase Overcurrent and Short Circuit Relay

Overcurrent trip level | 0.5 - 1.4 x I_n
---|---
Delay | 3 - 30 sec.
Short circuit trip level | 1.0 - 4.0 x I_n
Delay | 0.1 - 1.0 sec.
Max. voltage | 660V
Voltage range | 60 - 110%
Consumption | Voltage 5VA at U_n
Current | 0.3VA at I_n
Continuous current | 2 x I_n
Frequency range | 45 - 400Hz
Output relay | Normally energized
Extra output relay | Normally de-energized
Contact ratings | AC: 400V, 5A, 2000VA
DC: 150V, 5A, 150W
Overall accuracy | ±5%
Repeatability | ±1%
Operating temperature | -20°C to +70°C
Dielectric test | 2500V, 50Hz
Test standards | According to IEC/EN 61000-6-1/2/3/4, IEC/EN 60255-5/26/27
Approvals | Certified by major marine classification societies
Burn-in | 50 hours before final test
Enclosure material | Polycarbonate. Flame retardant
Weight | 0.5kg
Dimensions | 70 x 100 x 115mm (H x W x D)
Installation | 35mm DIN rail or 4mm (3/16") screws

The specifications are subject to change without notice.

Type Selection Table

Standard types: I_n = 5A and output relay normally energized.

<table>
<thead>
<tr>
<th>Type</th>
<th>1-3</th>
<th>2-3</th>
<th>I_n</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2500.0010</td>
<td>450V</td>
<td>400V</td>
<td>5A</td>
<td>Latching output, resetable</td>
</tr>
<tr>
<td>T2500.0020</td>
<td>230V</td>
<td></td>
<td>5A</td>
<td>Latching output, resetable</td>
</tr>
<tr>
<td>T2500.0030</td>
<td>480V</td>
<td>415V</td>
<td>5A</td>
<td>Latching output, resetable</td>
</tr>
<tr>
<td>T2500.0040</td>
<td>450V</td>
<td>400V</td>
<td>1A</td>
<td>Latching output, resetable</td>
</tr>
<tr>
<td>T2500.0050</td>
<td>24V</td>
<td></td>
<td>5A</td>
<td>Latching output, resetable</td>
</tr>
<tr>
<td>T2500.0060</td>
<td>230V</td>
<td></td>
<td>5A</td>
<td>De-energized extra output relay</td>
</tr>
<tr>
<td>T2500.0070</td>
<td>450V</td>
<td>400V</td>
<td>5A</td>
<td>De-energized extra output relay</td>
</tr>
<tr>
<td>T2500.0080</td>
<td>450V</td>
<td>400V</td>
<td>5A</td>
<td>De-energized extra output relay, latching outputs</td>
</tr>
<tr>
<td>T2500.0090</td>
<td>480V</td>
<td>415V</td>
<td>5A</td>
<td>De-energized extra output relay</td>
</tr>
<tr>
<td>T2500.0100</td>
<td>24V</td>
<td></td>
<td>1A</td>
<td>De-energized extra output relay</td>
</tr>
<tr>
<td>T2500.0110</td>
<td>450V</td>
<td>400V</td>
<td>5A</td>
<td>De-energized extra output relay, latching short circuit output</td>
</tr>
<tr>
<td>T2500.0120</td>
<td>24V</td>
<td></td>
<td>5A</td>
<td>De-energized extra output relay, de-energized relay 1, no internal power backup</td>
</tr>
</tbody>
</table>

Type Selection Table

Standard types: I_n = 5A and output relay normally energized.

<table>
<thead>
<tr>
<th>Terminals</th>
<th>1-3</th>
<th>2-3</th>
<th>I_n</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2500.0010</td>
<td>450V</td>
<td>400V</td>
<td>5A</td>
<td>Latching output, resetable</td>
</tr>
<tr>
<td>T2500.0020</td>
<td>230V</td>
<td></td>
<td>5A</td>
<td>Latching output, resetable</td>
</tr>
<tr>
<td>T2500.0030</td>
<td>480V</td>
<td>415V</td>
<td>5A</td>
<td>Latching output, resetable</td>
</tr>
<tr>
<td>T2500.0040</td>
<td>450V</td>
<td>400V</td>
<td>1A</td>
<td>Latching output, resetable</td>
</tr>
<tr>
<td>T2500.0050</td>
<td>24V</td>
<td></td>
<td>5A</td>
<td>Latching output, resetable</td>
</tr>
<tr>
<td>T2500.0060</td>
<td>230V</td>
<td></td>
<td>5A</td>
<td>De-energized extra output relay</td>
</tr>
<tr>
<td>T2500.0070</td>
<td>450V</td>
<td>400V</td>
<td>5A</td>
<td>De-energized extra output relay</td>
</tr>
<tr>
<td>T2500.0080</td>
<td>450V</td>
<td>400V</td>
<td>5A</td>
<td>De-energized extra output relay, latching outputs</td>
</tr>
<tr>
<td>T2500.0090</td>
<td>480V</td>
<td>415V</td>
<td>5A</td>
<td>De-energized extra output relay</td>
</tr>
<tr>
<td>T2500.0100</td>
<td>24V</td>
<td></td>
<td>1A</td>
<td>De-energized extra output relay</td>
</tr>
<tr>
<td>T2500.0110</td>
<td>450V</td>
<td>400V</td>
<td>5A</td>
<td>De-energized extra output relay, latching short circuit output</td>
</tr>
<tr>
<td>T2500.0120</td>
<td>24V</td>
<td></td>
<td>5A</td>
<td>De-energized extra output relay, de-energized relay 1, no internal power backup</td>
</tr>
</tbody>
</table>

Troubleshooting

1) If the relay is not operating please check that the power LED is on, ensuring that the supply is present.

2) Measure the supply voltage which must be compatible with the information label on top of the enclosure.

3) Measure the current levels in terminals 11-12, 13-14 and 15-16 and check that at least one of the currents is above setting:

For example: 1 x I_n = 5A; 2 x I_n = 10A.

Other combinations and voltages are available on request.