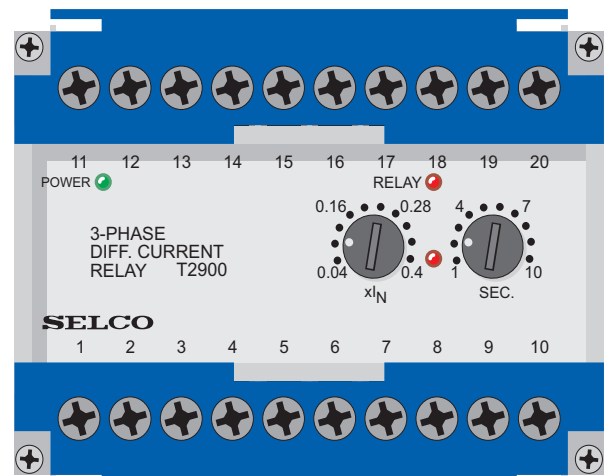


T2900 3 Ph. Differential Current Relay



- Protection of generators against differential currents
- Visual indication of power, pick-up and relay tripping
- 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
- Designed according to the rules of major marine classification societies
- Flame retardant enclosure



Application

The T2900 3 Phase Differential Relay is intended as a protection relay for generators, power transmissions and consumer's supply by tripping the main circuit breaker.

The T2900 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 T2900 is designed according to the rules of major marine classification societies.

Function

The T2900 measures the differential current of each of the 3 phases. The differential currents are measured by connecting current transformer for each winding in parallel with inverse polarity. The highest of the 3 differential currents is selected and, if this exceeds the preset level (0.04 – 0.4 x I_N), the pick-up LED will indicate and the delay timer will be started.

After the preset time has expired, the output relay and the corresponding LED will be activated, provided that the current level was exceeded for the entire delay time.

The timedelay can be adjusted between 1 - 10 sec. This time delay can be reduced by a factor 10 by bridging terminal 18 and 19.

The output relay is a latching relay. The latching can be reset or disabled by bridging terminals 5 and 6.

Installation

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

The T2900 is connected to the measuring current coming from the current transformers secondary via terminals 11-12, 13-14 and 15-16.

The current transformer on both sides must be of same type and the cables

lengths must be the same, so that the cable resistance is the same. The current transformers should not be connected to other devices than the T2900. See connection diagram.

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

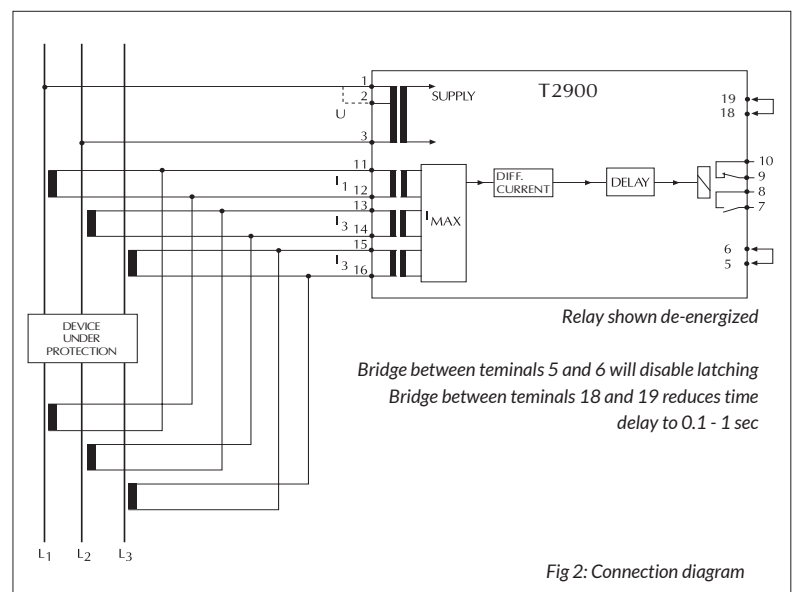
Differential current protection of a generator.

Required trip level: 20%

Generator rating: 695A

Current transformer: 800/5A

Setting: $20 \times 695/800 = 17\% = 0.17 \times I_N$



Specifications

T2900 3 Ph. Differential Current Relay

| | |
|-----------------------|--|
| Trip level | 0.04 – 0.4 x I _N |
| Delay | 1 - 10 sec. (0.1 - 1 sec. when bridging terminals 18 and 19) |
| 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 de-energized, latching, resettable |
| Contact rating | AC: 400V, 5A, 2000VA DC: 150V, 5A, 150W |
| Overall accuracy | ±5% |
| Repeatability | ±1% |
| Operating temperature | -20°C to +70°C |
| Dielectric test | 2500V, 50Hz |
| EMC | According to IEC/EN 61000-6-1/2/3/4 |
| 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 de-energized.

| Type | Terminals | | I _N | Function |
|------------|-----------|------|----------------|----------|
| | 1-3 | 2-3 | | |
| T2900.0010 | 450V | 400V | 5A | |
| T2900.0020 | 230V | | 5A | |
| T2900.0030 | 480V | 415V | 5A | |
| T2900.0040 | 110V | 100V | 5A | |

Other combinations and voltages are available on request.

Troubleshooting

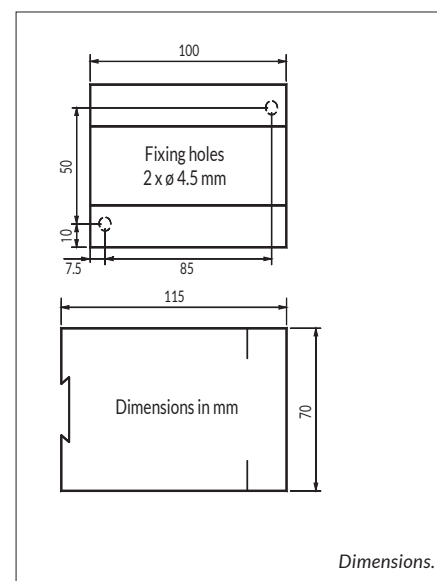
- 1) If the relay is not operating please check that the power LED is on, ensuring that the supply is present.
- 2) Measure the supply voltage which must be compatible with the information label on top of the enclosure.
- 3) Measure the current levels in terminals 11-12, 13-14 and 15-16 and check that at least one of the currents is above setting.

For example:

$$1 \times I_N = 5A; 2 \times I_N = 10A$$

For example:

$$0.08 \times I_N = 0.4A; 1 \times I_N = 5A$$



Approvals & Certificates

The T2900 has been approved by major marine classification societies.

For more information about the individual certificates, please visit selco.com