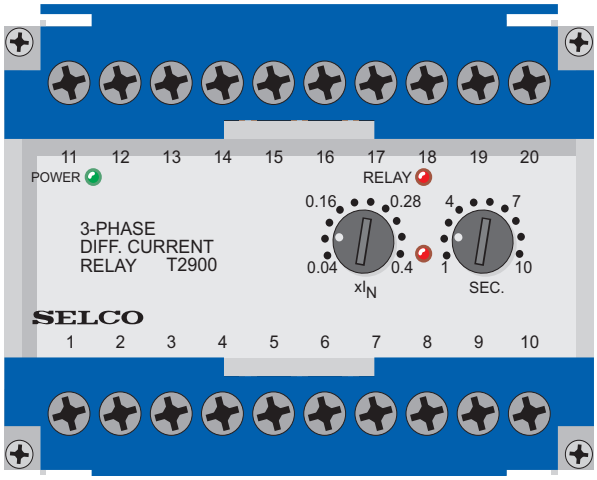
T2900 3 Ph. Differential Current Relay

- 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 IN), 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.

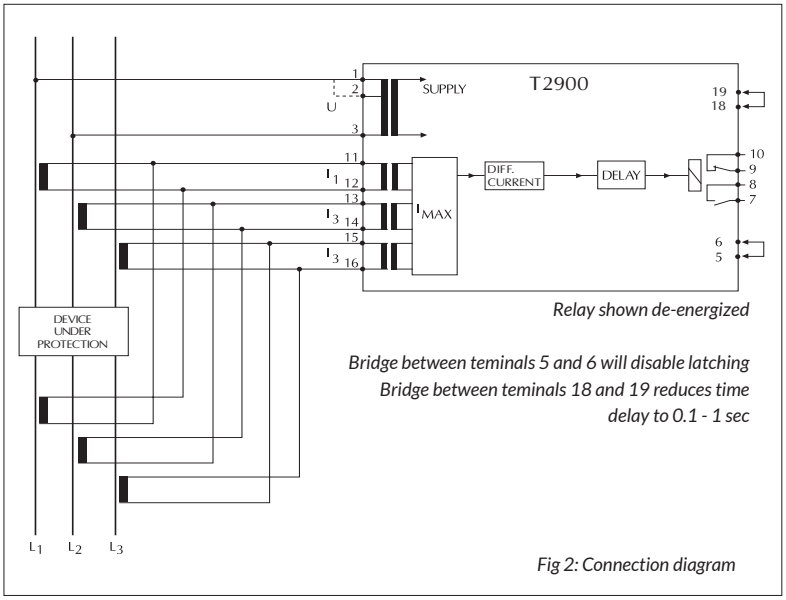
Installation

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 x 695/800 =17% = 0.17 x I_N



Relay shown de-energized

Bridge between teminals 5 and 6 will disable latching
Bridge between teminals 18 and 19 reduces time delay to 0.1 - 1 sec

Fig 2: Connection diagram

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, resetable
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.

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

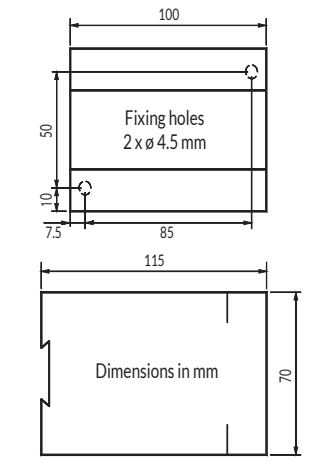
Other combinations and voltages are available on request.

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 infor-ma-tion 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

For example:
0.08 x I_N = 0.4A; 1 x I_N = 5A



Dimensions.

Approvals & Certificates

The T2900 has been approved by major marine classification societies.

For more information about the indivi-dual certificates, please visit **selco.com**

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