

T2400 3 Phase Dual Overcurrent Relay

Combined 3 Phase Overcurrent Relay in 2 individual steps.

- Protection of generators against overcurrent
- Trip of non essential services at peak loads
- 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
- Accepts high supply voltage variations: 60 - 110%
- Cost effective and highly reliable compact design
- 50 hours burn-in before final test
- Operating temperature range: -20°C to +70°C
- Certified by major marine classification societies
- Flame retardant enclosure
- DIN rail or screw mounting

Application

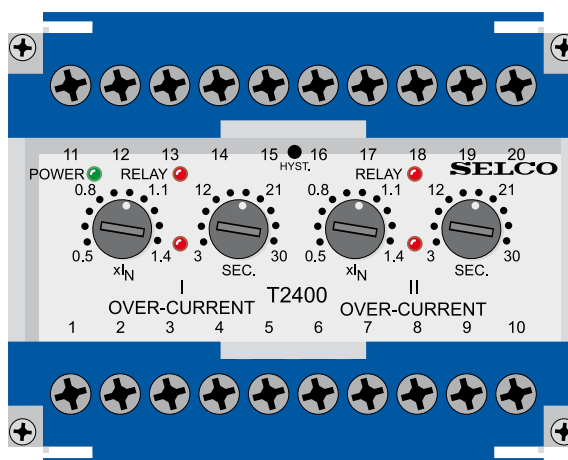
The T2400 3 Phase Dual Overcurrent Relay includes two combined over-current relays, intended for protection or monitoring of generators, power transmissions and consumer's supply.

A typical application in a generator installation is to use one of the overcurrent functions to trip the generator circuit breaker, and the other overcurrent function to trip a non essential service. The last relay must have the lowest current setting, and the shortest time delay setting in order to trip non essential load before the generator circuit breaker.

The T2400 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 T2400 is type approved by major marine classification societies.

Function

The T2400 consists of two identical circuit parts, completely alike, with similar current settings and time delays. Each circuit part detects the highest of the 3 input currents and, if this exceeds the preset level ($0.5 - 1.4 \times I_N$), the corresponding pick-up LED will indicate and the delay timer will be started.



After the preset time (3 - 30 sec.) has expired, the corresponding output relay and LED will be activated, provided that the current level was exceeded for the entire delay time. The output relay I has separate normally-open (NO) and normally-closed (NC) contacts, while output relay II has a changeover contact.

Installation

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

The T2400 is connected to the measuring current coming from the current transducers secondary via terminals 11-12, 13-14 and 15-16. See connection diagram.

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

Circuit breaker trip level: 110%

Generator rating: 695A

Current transformer: 800/5A

Setting: $110 \times 695 / 800 = 96\% = 0.96 \times I_N$

Delay: 25 sec.

Non essential trip level: 100%

Setting: $100 \times 695 / 800 = 97\% = 0.87 \times I_N$

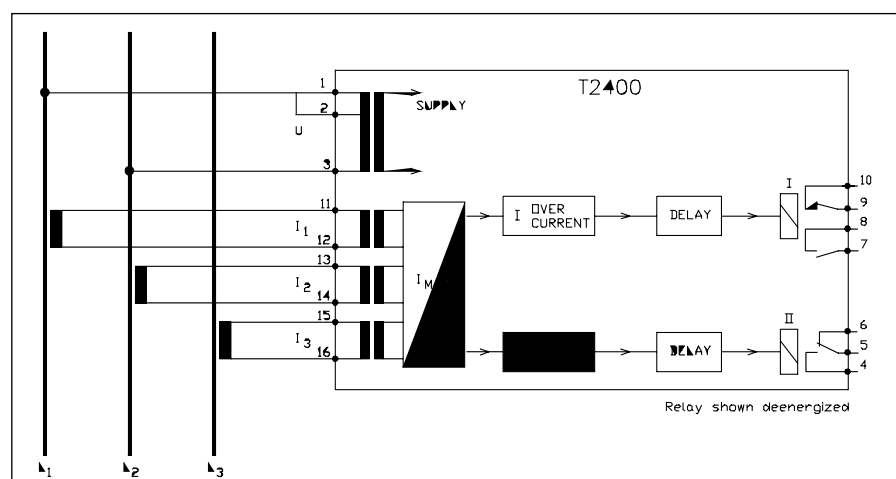
Delay: 20 sec.

Troubleshooting

- 1) If the relays are 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:

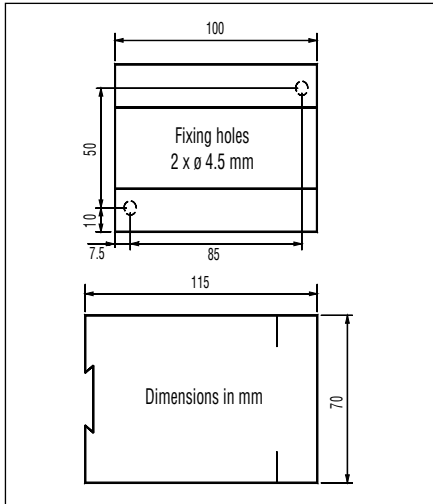
$0.5 \times I_N = 2.5A$; $1 \times I_N = 5A$.



Connection diagram.

Specifications

T2400 3 Phase Dual Overcurrent Relay



Dimensions.

Type Approvals and Certificates

The T2400 has been designed and tested for use in harsh environments. The unit is based on standard components, providing long term durability. The T2400 carries the CE label and has been approved by the following marine classification societies:



Bureau Veritas
Croatian Register of Shipping
Germanischer Lloyd
Romanian Register of Shipping
Russian Maritime Register of Shipping

Trip levels	0.5 - 1.4 x I _N
Delays	3 - 30 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 relays	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
EMC	CE according to EN50081-1, EN50082-1, EN50081-2, EN50082-2
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.

Type	Terminals		I _N	Function
	1-3	2-3		
T2400.0010	230V		5A	
T2400.0020	450V	400V	5A	
T2400.0030	110V	100V	5A	
T2400.0040	450V	400V	5A	Latching output on relay 1, 6 - 60 sec. delay on relay 1
T2400.0050	480V	415V	5A	
T2400.0060	450V	400V	1A	
T2400.0070	450V	400V	5A	Latching output on relay 1, normally energized relay 1
T2400.0080	127V	120V	5A	
T2400.0090	24V DC		5A	

Latching output relays are reset by disconnecting the power supply.

Other combinations and voltages are available on request.

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