

# Time Delay Relays

Dedicated - Delay-on-Make, Normally Closed

## TS441165



### Description

The TS441165 is an analog delay-on-make timer with a normally closed solid-state output. Unlike an interval timer, the load is energized prior to and during the time delay period. It can be used as a faster starting interval time delay when S1 is closed upon application of input voltage.

#### Operation (Delay-on-Make NC)

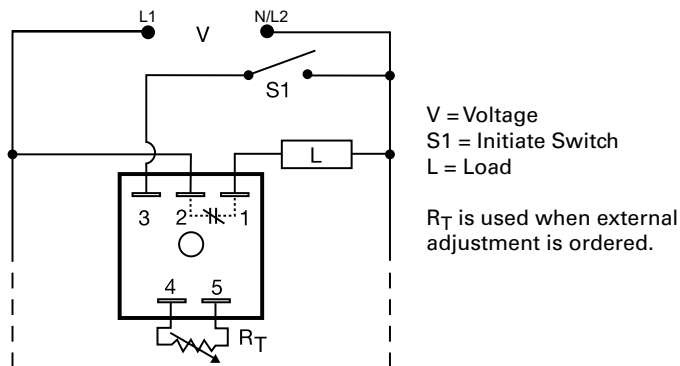
Upon application of input voltage, the load is energized immediately. When the initiate switch is closed, the time delay begins. At the end of the time delay, the load de-energizes.

**Reset:** When the initiate switch is reopened, the load again energizes and the time delay is reset. Removing input voltage resets the time delay and output.

### Features & Benefits

| FEATURES                                             | BENEFITS                                                                                                         |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>Analog circuitry</b>                              | Repeat Accuracy + / - 2%                                                                                         |
| <b>Compact, low cost design</b>                      | Allows flexibility for OEM applications                                                                          |
| <b>1A steady, 10A inrush solid-state output</b>      | Provides 100 million operations in typical conditions.                                                           |
| <b>Load energized prior to and during time delay</b> | Faster operation                                                                                                 |
| <b>Totally solid state and encapsulated</b>          | No moving parts to arc and wear out over time and encapsulated to protect against shock, vibration, and humidity |
| <b>Normally closed output</b>                        | Can be used as a faster starting interval time delay                                                             |

### Wiring Diagram



### Accessories



#### P1004-XX, P1004-XX-X Versa-Pot

Panel mountable, industrial potentiometer recommended for remote time delay adjustment.



#### P1023-6 Mounting bracket

The 90° orientation of mounting slots makes installation/removal of modules quick and easy.



#### P0700-7 Versa-Knob

Designed for 0.25 in. (6.35 mm) shaft of Versa-Pot. Semi-gloss industrial black finish.



#### P1015-64 (AWG 14/16)

##### Female Quick Connect

These 0.25 in. (6.35 mm) female terminals are constructed with an insulator barrel to provide strain relief.



#### P1015-18 Quick Connect to Screw Adapter

Screw adapter terminal designed for use with all modules with 0.25 in. (6.35 mm) male quick connect terminals.

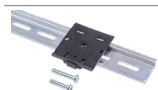
## TS441165

### Accessories



#### C103PM (AL) DIN Rail

35 mm aluminum DIN rail available in a 36 in. (91.4 cm) length.



#### P1023-20 DIN Rail Adapter

Allows module to be mounted on a 35 mm DIN type rail with two #10 screws.



#### VTP(X)(X) Plug-on Adjustment Module

Mounts on modules with in-line adjustment terminals. Rated at 0.25W at 55°C. Available in resistance values from 5KΩ to 5MΩ.

#### Selection Table for VTP Plug-on Adjustment Accessory

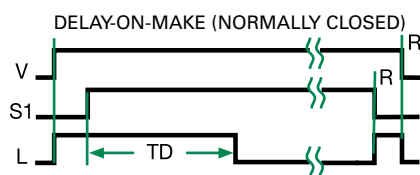
| Time Delay  | VTP P/N |
|-------------|---------|
| 1 - 0.05-3s | VTP4B   |
| 2 - 0.5-60s | VTP4F   |
| 3 - 2-180s  | VTP4J   |
| 4 - 5-600s  | VTP5N   |

### Selection Guide

| R <sub>T</sub> Selection Chart |     |     |     |                |
|--------------------------------|-----|-----|-----|----------------|
| Desired Time Delay*            |     |     |     | R <sub>T</sub> |
| Seconds                        |     |     |     |                |
| 1                              | 2   | 3   | 4   | Megohm         |
| 0.05                           | 0.5 | 2   | 5   | 0.0            |
| 0.5                            | 10  | 30  | 60  | 0.5            |
| 1.0                            | 20  | 60  | 120 | 1.0            |
| 1.5                            | 30  | 90  | 180 | 1.5            |
| 2.0                            | 40  | 120 | 240 | 2.0            |
| 2.5                            | 50  | 150 | 300 | 2.5            |
| 3.0                            | 60  | 180 | 360 | 3.0            |
|                                |     |     | 420 | 3.5            |
|                                |     |     | 480 | 4.0            |
|                                |     |     | 540 | 4.5            |
|                                |     |     | 600 | 5.0            |

\* When selecting an external R<sub>T</sub> add at least 20% for tolerance of unit and the R<sub>T</sub>.

### Function Diagram



V = Voltage  
S1 = Initiate Switch  
L = Load  
TD = Time Delay  
R = Reset  
— = Undefined Time

### Specifications

#### Time Delay

##### Type

Analog circuitry

##### Range

165s

##### Adjustment

Fixed

##### Repeat Accuracy

±2% or 20ms, whichever is greater; under fixed conditions

##### Tolerance

##### (Factory Calibration)

≤ ±10%

##### Time Delay vs Temp.

≤ ±10%

##### & Voltage

≤ 150ms

##### Recycle Time

##### Input

##### Voltage

120VAC

##### Tolerance

±20%

##### AC Line Frequency

50/60 Hz

##### Output

##### Type

Solid state

##### Form

NC, closed during timing

##### Maximum Load Current

1A steady state, 10A inrush at 60°C

##### Voltage Drop

≅ 2.5V @ 1A

##### Protection

##### Circuitry

Encapsulated

##### Dielectric Breakdown

≥ 2000V RMS terminals to mounting surface

##### Insulation Resistance

≥ 100 MΩ

##### Mechanical

##### Mounting

Surface mount with one #10 (M5 x 0.8) screw

##### Dimensions

**H** 50.8 mm (2.0"); **W** 50.8 mm (2.0");

**D** 30.7 mm (1.21")

0.25 in. (6.35 mm) male quick connect terminals

##### Termination

##### Environmental

##### Operating/Storage

##### Temperature

-40° to 75°C / -40° to 85°C

##### Humidity

95% relative, non-condensing

##### Weight

≅ 2.4 oz (68 g)