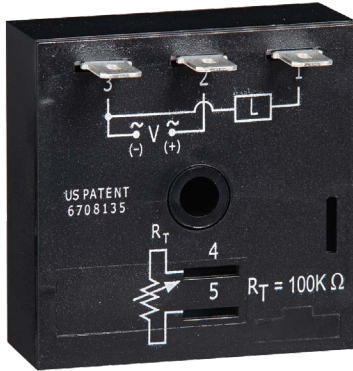
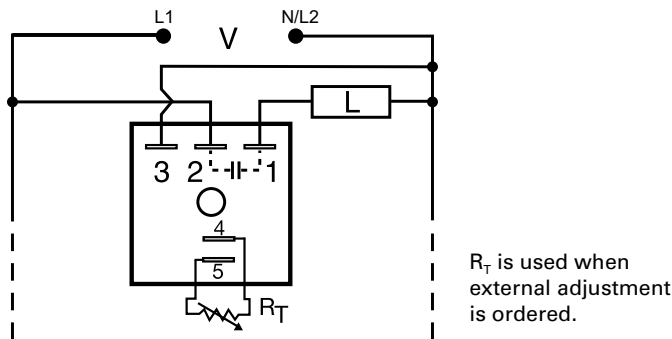


# TSD3411S

## Recycling Timer



## Wiring Diagram



## Description

The TSD3411S is a solid-state ON/OFF recycling timer with the on time always equal to the off time. When time delay is changed by the RT, both the ON and the OFF periods are changed. The TSD Series is designed for more demanding commercial and industrial applications where small size, and accurate performance is required. The factory calibration for fixed time delays is within 1% of the target time delay. The repeat accuracy, under stable conditions, is 0.1% of the time delay. The TSD3411S is rated to operate over an extended temperature range. Time delays of 0.1 seconds to 100 hours are available. The output is rated 1A steady and 10A inrush. The modules are totally solid state and encapsulated to protect the electronic circuitry.

### Operation (Recycling Flasher - ON Time First)

Upon application of input voltage, the output energizes and the T1, ON time begins. At the end of the ON time, the output de-energizes and the T2 OFF time begins. At the end of the OFF time, the output energizes and the cycle repeats as long as input voltage is applied.

**Reset:** Removing input voltage resets the output and time delays, and returns the sequence to the T1 ON time.

## Features & Benefits

| FEATURES                                        | BENEFITS                                                                                                         |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>Microcontroller based</b>                    | Repeat Accuracy + / - 0.1%, + / -1% time delay accuracy                                                          |
| <b>Extended temperature range</b>               | Rated to 75°C operating temperature to withstand high heat applications.                                         |
| <b>Compact, low cost design</b>                 | Allows flexibility for OEM applications                                                                          |
| <b>1A Steady solid-state output, 10A inrush</b> | Provides 100 million operations in typical conditions.                                                           |
| <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 |

## Accessories



**P1004-95, P1004-95-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.



**C103PM (AL) DIN Rail**  
35 mm aluminum DIN rail available in a 36 in. (91.4 cm) length.

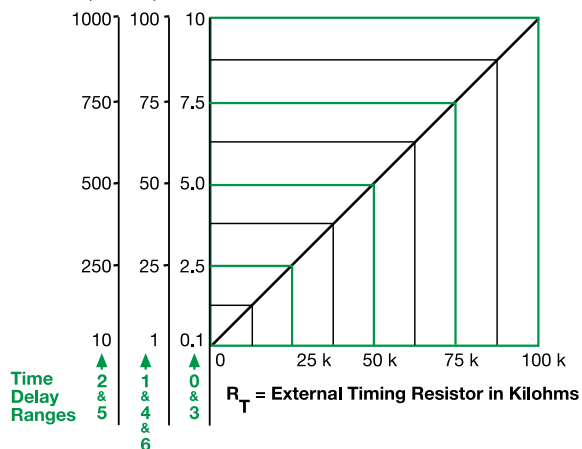


**P1023-20 DIN Rail Adapter**  
Allows module to be mounted on a 35 mm DIN type rail with two #10 screws.

# TSD3411S

## External Resistance vs. Time Delay

In Secs., Mins., or Hours



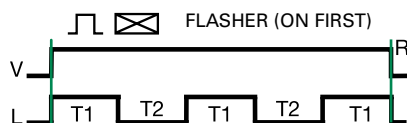
This chart applies to externally adjustable part numbers.

The time delay is adjustable over the time delay range selected by varying the resistance across the  $R_T$  terminals; as the resistance increases the time delay increases.

When selecting an external  $R_T$ , add the tolerances of the timer and the  $R_T$  for the full time range adjustment.

**Examples:** 1 to 50 S adjustable time delay, select time delay range 1 and a 50 K ohm  $R_T$ . For 1 to 100 S use a 100 K ohm  $R_T$ .

## Function Diagram



V = Voltage  
L = Load  
T1 = ONTime  
T2 = OFFTime  
T1  $\approx$  T2  
R = Reset

ON time plus OFF time equals one complete flash.

## Specifications

### Time Delay

#### Range

0.1s - 100h in 7 adjustable ranges

#### Repeat Accuracy

$\pm 0.1\%$  or 20ms, whichever is greater

#### Tolerance

#### (Factory Calibration)

$\leq \pm 1\%$

#### Reset Time

$\leq 150\text{ms}$

#### Time Delay vs. Temperature & Voltage

$\leq \pm 1\%$

### Input

#### Voltage

24, 120, or 230VAC

#### Tolerance

$\pm 20\%$

#### AC Line Frequency

50/60 Hz

#### Power Consumption

$\leq 2\text{VA}$

### Output

#### Type

Solid state

#### Maximum Load Current

1A steady state, 10A inrush at 60°C

#### Off State Leakage Current

$\approx 5\text{mA}$  @ 230VAC

#### Voltage Drop

$\approx 2.5\text{V}$  @ 1A

### Protection

#### Circuitry

Encapsulated

#### Dielectric Breakdown

$\geq 2000\text{V RMS}$  terminals to mounting surface

#### Insulation Resistance

$\geq 100\text{ M}\Omega$

### Mechanical

#### Mounting

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

#### Dimensions

**H** 50.8 mm (2"); **W** 50.8 mm (2");

**D** 30.7 mm (1.21")

0.25 in. (6.35 mm) male quick connect

### Termination

terminals

### Environmental

#### Operating/Storage

#### Temperature

-40° to 75°C / -40° to 85°C

#### Humidity

95% relative, non-condensing

#### Weight

$\approx 2.4\text{ oz}$  (68 g)