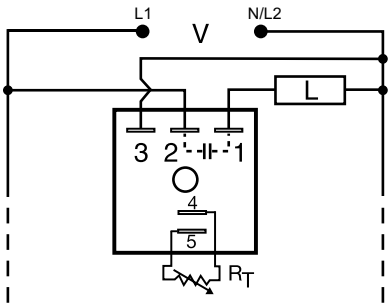
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# TSDR SERIES




## Wiring Diagram




V = Voltage
L = Load

$R_T$ is used when external adjustment is ordered. An onboard adjustment, or terminals 4 & 5 are only included on adjustable units.

## Description

The TSDR Series is an ON/OFF or OFF/ON recycling timing module designed to control metering pumps, chemical valves, flash lamps, or use in energy saving or duty cycling applications. The TSDR Series is designed for more demanding commercial and industrial applications where small size and accurate performance are required. The factory calibration for fixed time delays is < ±5%. The repeat accuracy, under stable conditions, is 0.5% of the time delay. The TSDR Series is rated to operate over an extended temperature range. Time delays of 0.1 seconds to 1000 minutes 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 - 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.

### Operation (Recycling - OFF Time First)

Upon application of input voltage, the T2 OFF time begins. At the end of the OFF time, the T1 ON time begins and the load energizes. At the end of the T1, T2 begins and the load de-energizes. This cycle repeats until input voltage is removed.

**Reset:** Removing input voltage resets the output and the sequence to T2 OFF time.

## Ordering Information

| MODEL | INPUT VOLT. | ADJUST. | T1 ON TIME | FIRST DELAY | T2 OFF TIME |
|---|---|---|---|---|---|
| TSDR215SB18M | 24VAC | Fixed | 5s | Off time | 18m |
| TSDR415SB18M | 120VAC | Fixed | 5s | Off time | 18m |
| TSDR4412SA1 | 120VAC | On time fixed, off external | 12s | On time | 1 - 100s |
| TSDR442MA2 | 120VAC | On time fixed, off external | 2m | On time | 10 - 1000s |
| TSDR4430SA2 | 120VAC | On time fixed, off external | 30s | On time | 10 - 1000s |
| TSDR610.2SA0.2S | 230VAC | Fixed | 0.2s | On time | 0.2s |
| TSDR6110SA30S | 230VAC | Fixed | 10s | On time | 30s |
| TSDR612.5SA4.5S | 230VAC | Fixed | 2.5s | On time | 4.5s |
| TSDR615SB18M | 230VAC | Fixed | 5s | Off time | 18m |
| TSDR6412SA1 | 230VAC | On time fixed, off external | 12s | On time | 1 - 100s |

If you don't find the part you need, call us for a custom product 800-843-8848

## Features & Benefits

| FEATURES | BENEFITS |
|---|---|
| **Microcontroller based** | Repeat accuracy +/- 0.5%, Factory calibration +/- 5% |
| **1A steady, 10A inrush solid-state output** | Provides 100 million operations in typical conditions |
| **Totally solid state and encapsulated** | No moving parts to arc and wear out over time and encapsulated to protect against shock, vibration, and humidity |
| **Wide operating temperature range: -40° to 75°C** | Reliable in demanding commercial and industrial applications |
| **Compact, low cost design measuring 2 in. (50.8mm) square** | Allows flexiblility for OEM applications |

## 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.

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# TSDR SERIES

## Accessories



**P0700-7 Versa-Knob**
Designed for 0.25 in (6.35 mm) shaft of Versa-Pot. Semi-gloss industrial black finish.



**P1015-13** (AWG 10/12), **P1015-64** (AWG 14/16), **P1015-14** (AWG 18/22) **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.

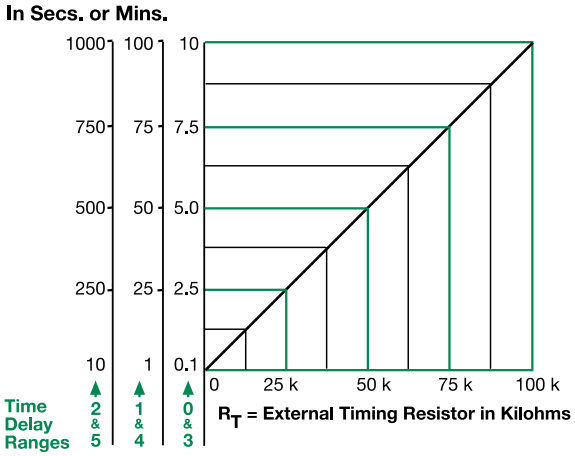


**C103PM (AL) DIN Rail**
35 mm aluminum DIN rail available in a 36 in. (91.4 cm) length.



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

## External Resistance vs. Time Delay

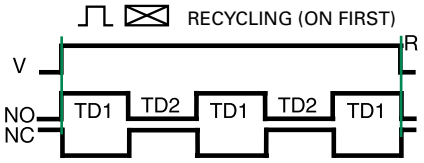


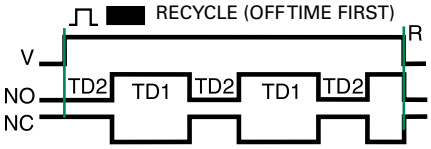

**This chart applies to externally adjustable part numbers.**
The time delay is adjustable over the time delay range selected by varying the resistance across the $R_T$ terminals; as the resistance increases the tie delay increases.

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 ohn $R_T$. For 1 to 100 S use a 100 K ohm $R_T$.

## Function Diagrams




V = Voltage
NO = Normally Open Contact
NC = Normally Closed Contact
TD1, TD2 = Time Delay
R = Reset

## Specifications

### Time Delay

| | |
|---|---|
| **Range** | 0.1s - 1000m in 6 adjustable ranges or fixed |
| **Repeat Accuracy** | ±0.5% or 20ms, whichever is greater |
| **Tolerance (Factory Calibration)** | ≤ ±5% |
| **Reset Time** | ≤ 150ms |
| **Time Delay vs Temp. & Voltage** | ≤ ±5% |

### Input

| | |
|---|---|
| **Voltage** | 24, 120, or 230VAC |
| **Tolerance** | ±20% |
| **AC Line Frequency** | 50/60 Hz |
| **Power Consumption** | ≤ 2VA |

### Output

| | |
|---|---|
| **Type** | Solid state |
| **Maximum Load Current** | 1A steady state, 10A inrush at 60°C |
| **Off State Leakage Current** | ≅ 5mA @ 230VAC |
| **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"); **W** 50.8 mm (2"); **D** 30.7 mm (1.21") |
| **Termination** | 0.25 in. (6.35 mm) male quick connect terminals |

### Environmental

| | |
|---|---|
| **Operating/Storage Temperature** | -40° to 75°C / -40° to 85°C |
| **Humidity** | 95% relative, non-condensing |
| **Weight** | ≅ 2.4 oz (68 g) |

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