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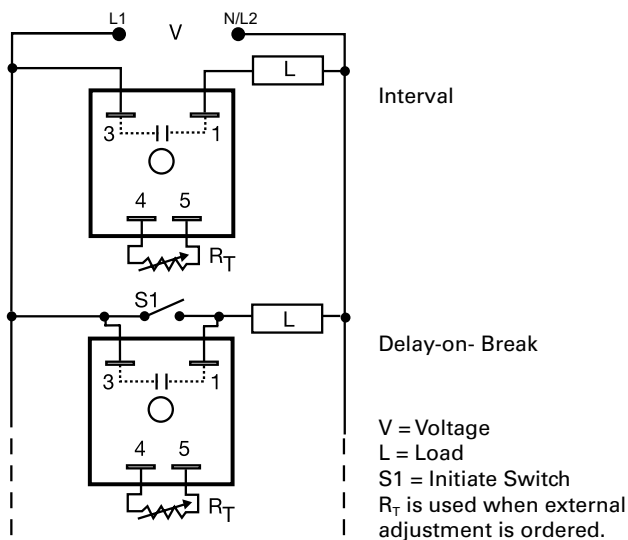


# TSD7 SERIES

## Interval/Delay-on-Break Timer



### Wiring Diagram



### Description

The TSD7 Series utilizes only two terminals connected in series with the load. Interval timing mode period is achieved by using a small portion of the AC sine wave allowing sufficient voltage for circuit operation. It can be used as an interval timer to control or pulse shape the operation of contactors, solenoids, relays, and lamp loads. The TSD7 Series can be wired to delay on the break of a switch for energy saving fan delays.

#### Operation (Interval)

Upon application of input voltage, the output energizes and the time delay begins. The output remains energized throughout the time delay. At the end of the time delay, the output de-energizes and remains de-energized until power is removed.

**Reset:** Removing input voltage resets the time delay and the output.

#### Operation (Delay-on-Break)

Upon closure of SW1, the load is energized and the timer is reset (zero volts across its input terminals). Opening SW1 re-applies input voltage to the timer, the load remains energized and the time delay begins. At the end of the time delay, the output de-energizes. If SW1 is open when power is applied, the load will energize for the time delay then de-energize.

**Reset:** Reclosing SW1 resets the timer.

### Features & Benefits

FEATURES	BENEFITS
<b>Microcontroller based</b>	Repeat Accuracy +/- 0.5%, +/- 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
<b>Two terminal series load connections</b>	Provides quick and easy installation for new or existing systems

### Ordering Information

MODEL	INPUT VOLTAGE	ADJUSTMENT	TIME DELAY	MODEL	INPUT VOLTAGE	ADJUSTMENT	TIME DELAY
TSD7412S	120VAC	Fixed	2s	TSD761120S	230VAC	Fixed	120s
TSD7414M	120VAC	Fixed	4m	TSD761180S	230VAC	Fixed	180s
TSD7421	120VAC	External	1 - 100s	TSD7611S	230VAC	Fixed	1s
TSD7423	120VAC	External	0.1 - 10m	TSD7621	230VAC	External	1 - 100s
TSD7424	120VAC	External	1 - 100m				

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## TSD7 SERIES

### Accessories



**P1004-13, P1004-13-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.



**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	Time Delay	VTP P/N
1 - 1-100s	VTP5G	4 - 1-100m	VTP5P
2 - 10-1000s	VTP5K	5 - 10-1000m	VTP5R
3 - 0.1-10m	VTP5N		

### Specifications

#### Time Delay

**Type** Digital integrated circuitry  
**Range** 1s - 1000m in 5 adjustable ranges or fixed  
**Repeat Accuracy** ±0.5% or 20ms, whichever is greater

**Tolerance (Factory Calibration)** ≤ ±10%  
**Recycle Time** ≤ 400ms

**Time Delay vs Temp. & Voltage** ≤ ±2%

**Input Voltage** 24, 120, or 230VAC

**Tolerance** ±20%  
**AC Line Frequency** 50/60 Hz

**Output Type** Solid state  
**Form** NO, closed during timing  
**Maximum Load Current** 1A steady state, 10A inrush at 45°C  
**Minimum Load Current** 40mA

	Input	Effective Drop
	24VAC	3V
	120VAC	4V
	230VAC	6V

#### Protection

**Circuitry** Encapsulated  
**Dielectric Breakdown** ≥ 2000V RMS terminals to mounting surface  
**Insulation Resistance** ≥ 100 MΩ

#### Mechanical

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

### Selection Guide

R <sub>T</sub> Selection Chart					
Desired Time Delay*					R <sub>T</sub> Megohm
Seconds		Minutes			
1	2	3	4	5	
1	10	0.1	1	10	0.0
10	100	1	10	100	0.5
20	200	2	20	200	1.0
30	300	3	30	300	1.5
40	400	4	40	400	2.0
50	500	5	50	500	2.5
60	600	6	60	600	3.0
70	700	7	70	700	3.5
80	800	8	80	800	4.0
90	900	9	90	900	4.5
100	1000	10	100	1000	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 Diagrams

