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TSD7 SERIES

Interval/Delay-on-Break Timer

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.

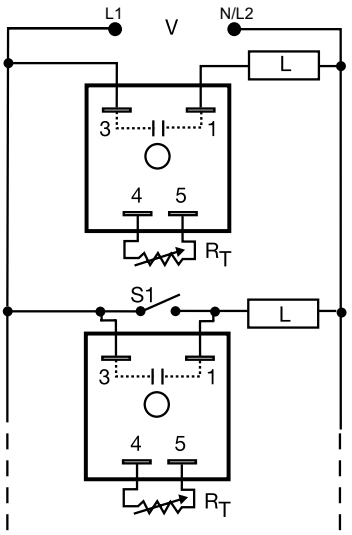
Reset: Removing input voltage resets the time delay and the output.

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.

Wiring Diagram



Interval

Delay-on- Break

V = Voltage
L = Load
S1 = Initiate Switch
R_T is used when external adjustment is ordered.

Features & Benefits

FEATURES	BENEFITS
Microcontroller based	Repeat Accuracy + / - 0.5%, + / -1% time delay accuracy
Extended temperature range	Rated to 75°C operating temperature to withstand high heat applications
Compact, low cost design	Allows flexiblility for OEM applications
1A steady solid-state output, 10A inrush	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
Two terminal series load connections	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					
TSD7424	120VAC	External	1 - 100m					

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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
Effective Voltage Drop (VLine-VLoad)	

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	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

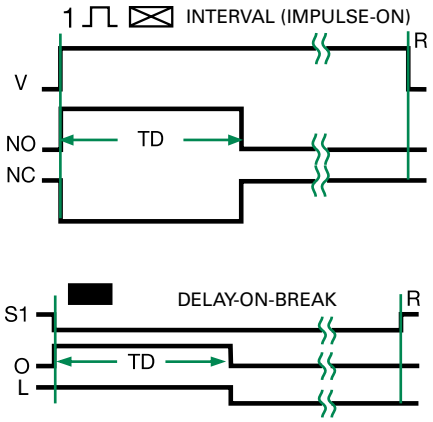
Operating/Storage Temperature	-40° to 75°C / -40° to 85°C
Humidity	95% relative, non-condensing
Weight	≅ 2.4 oz (68 g)

Selection Guide

R_T Selection Chart					
Desired Time Delay*					R_T
Seconds		Minutes			
1	2	3	4	5	Megohm
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_T add at least 20% for tolerance of unit and the R_T.

Function Diagrams



V = Voltage
S1 = Initiate Switch
NO = Normally Open Contact
NC = Normally Closed Contact
O = Output
L = Load
TD = Time Delay
R = Reset
⌇⌇ = Undefined Time