

The TSD1 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 TSD1 Series 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.

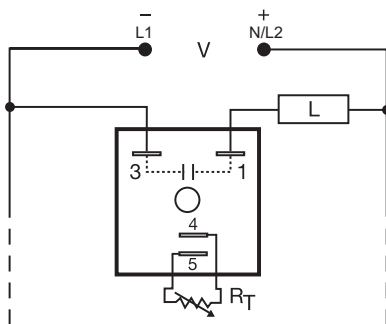
Features:

- Fixed or adjustable delays from 0.1s - 100h
 - $\pm 0.1\%$ repeat accuracy
 - $\pm 1\%$ factory calibration
 - 12 to 230V in 6 ranges
 - 1A, solid-state output
 - Encapsulated
- Approvals:

Auxiliary Products:

- **External adjust potentiometer:**
P/N: P1004-95
P/N: P1004-95-X
- **Female quick connect:**
P/N: P1015-64 (AWG 14/16)
- **Quick connect to screw adaptor:**
P/N: P1015-18
- **Mounting bracket:** P/N: P1023-6
- **Versa-knob:** P/N: P0700-7
- **DIN rail:** P/N: C103PM (Al)
- **DIN rail adaptor:** P/N: P1023-20

Connection:



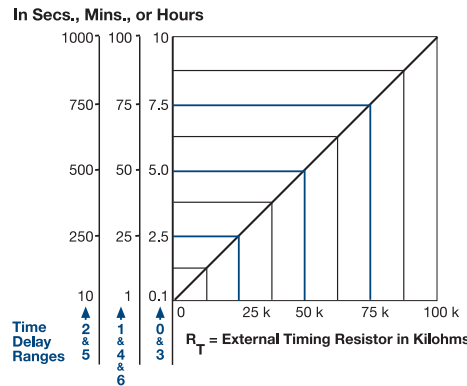
Load may be connected to terminal 3 or 1.
 R_T is used when external adjustment is ordered.

Operation (Delay-on-Make):

Upon application of input voltage, the time delay begins. The output is de-energized before and during the time delay. At the end of the time delay, the output energizes and remains energized until input voltage is removed. Reset: Removing input voltage resets the time delay and output.

For more information see:
Appendix A, pages 156-164 for function descriptions and diagrams.
Appendix B, page 165, Figure 1 for dimensional drawing.

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 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 .

Available Models:

- TSD11110S
- TSD1311.2S
- TSD1315S
- TSD1320
- TSD1321
- TSD1424

If desired part number is not listed, please call us to see if it is technically possible to build.

Order Table:

TSD1	X	X	X
	Input Voltage	Adjustment	Time Delay*
	1 - 12VDC	1 - Fixed	0 - 0.1 - 10s
	2 - 24VAC	2 - External adjust	1 - 1 - 100s
	3 - 24VDC	3 - Onboard adjust	2 - 10 - 1000s
	4 - 120VAC		3 - 0.1 - 10m
	5 - 120VDC		4 - 1 - 100m
	6 - 230VAC		5 - 10 - 1000m
			6 - 1 - 100h

*If fixed delay is selected, insert delay (0.1 - 1000) followed by (S) sec. (M) min. or (1 - 100) (H) hours.

Specifications

Time Delay	
Range	0.1s - 100h in 7 adjustable ranges or fixed
Repeat Accuracy	$\pm 0.1\%$ or 20ms, whichever is greater
Tolerance (Factory Calibration)	$\pm 1\%$
Recycle Time	≤ 150 ms
Time Delay vs Temp. & Voltage	$\pm 1\%$
Input	
Voltage	12, 24, 120VDC; 24, 120, 230VAC
Tolerance	$\pm 20\%$
AC Line Frequency	50/60 Hz
Output	
Type	Solid state
Form	NO, open during timing
Maximum Load Current	1A steady state, 10A inrush at 60°C
Minimum Holding Current	≤ 40 mA
Off State Leakage Current	≈ 7 mA @ 230VAC
Voltage Drop	≈ 2.5 V @ 1A

Protection	
Circuitry	Encapsulated
Dielectric Breakdown	≥ 2000 V RMS terminals to mounting surface
Insulation Resistance	≥ 100 M Ω
Polarity	DC units are reverse polarity protected
Mechanical	
Mounting	Surface mount with one #10 (M5 x 0.8) screw
Dimensions	2 x 2 x 1.21 in. (50.8 x 50.8 x 30.7 mm)
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)