Delay On Make (Operate)
TSD1 Digi-Timer
Timing Module

- Fixed or Adjustable Delays From 0.2 s ... 10,000 m
- C/MOS Digital Circuitry
- +/-0.1% Repeat Accuracy (Including First Operation)
- +/-1% Stability Over Voltage & Temperature
- 12 ... 230 V
- No First Shot Effect
- Encapsulated

Description

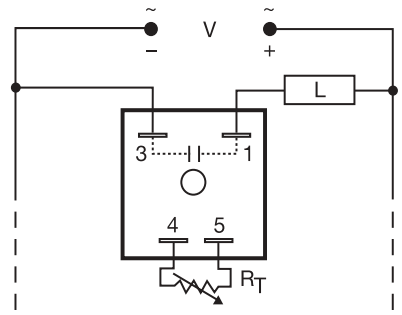
Digi-Time utilizes a stable oscillator and C/MOS digital counting circuitry to provide extremely high accuracy and long delays. This combined with two-terminal series connection with the load makes the TSD1 Series an ideal choice for Delay On Make timing applications where accuracy and/or long time delays are required.

Operation

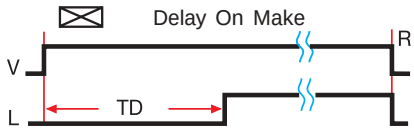
Upon application of input voltage, the time delay begins. The output is de-energized before and during the time delay. At the end of the time delay, the output is energized and remains energized until input voltage is removed.

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

■ Approvals:



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



V = Voltage L = Load R = Reset
TD = Time Delay —⌇— = Undefined time

Ordering Table

TSD1 Series	X Input	X Adjustment	X Time Delay*
	-1 - 12 V DC	**-1** -Fixed	**-0** - 0.2 ... 10 s
	-2 - 24 V AC	**-2** -External Adjust	**-1** - 1 ... 100 s
	-3 - 24 V DC		**-2** - 10 ... 1000 s
	-4 - 120 V AC		**-3** - 0.1 ... 10 m
	-5 - 120 V DC		**-4** - 1 ... 100 m
	-6 - 230 V AC		**-5** - 10 ... 1000 m
			-6 - 100 ... 10,000 m

*If Fixed Delay is selected, insert delay [0.2 ... 1000] followed by (**S**) secs. or [0.1 ... 10000] (**M**) mins.

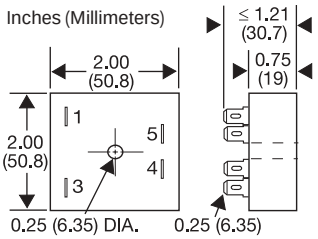
Example P/N: **TSD1421** Fixed – **TSD1410.5S**

R_T Selection Chart							
Desired Time Delay*							R_T
Seconds			Minutes				
0	1	2	3	4	5	6	Megohm
0.2	1	10	0.1	1	10	100	0.0
1	10	100	1	10	100	1000	0.1
2	20	200	2	20	200	2000	0.2
3	30	300	3	30	300	3000	0.3
4	40	400	4	40	400	4000	0.4
5	50	500	5	50	500	5000	0.5
6	60	600	6	60	600	6000	0.6
7	70	700	7	70	700	7000	0.7
8	80	800	8	80	800	8000	0.8
9	90	900	9	90	900	9000	0.9
10	100	1000	10	100	1000	10000	1.0

* When selecting an external R_T add at least 11% for tolerance of unit and the R_T.

Technical Data

Time Delay	
Type	Digital integrated circuitry
Range	0.2 s ... 10,000 m in 7 adjustable ranges or fixed
Repeat Accuracy	+/-0.1% or 16 ms, whichever is greater
Tolerance (Factory Calibration)	≤+/-1%
Recycle Time	≤200 ms
Time Delay vs. Temperature & Voltage	≤+/-1%
Input	
Voltage	12, 24, 120, or 230 V
Tolerance	+/-20%
Line Frequency	50 ... 60 Hz
Output	
Type	Solid state
Form	Normally Open, open during timing
Maximum Load Current	1 A steady state, 10 A inrush at 60°C
Minimum Holding Current	≤ 40 mA
Voltage Drop	≅ 2.5 V at 1 A
Protection	
Circuitry	Encapsulated
Dielectric Breakdown	≥ 2000 V RMS terminals to mounting surface
Insulation Resistance	≥ 100 MΩ
Mechanical	
Mounting	Surface mount with one #10 (M5 x 0.8) screw
Package	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 Temperature	-40°C ... +80°C
Storage Temperature	-40°C ... +85°C
Humidity	95% relative, non-condensing
Weight	≅ 2.4 oz (68 g)

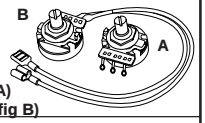


Time Delay	VTP P/N
0 – 0.2 ... 10 s	VTP2C
1 – 1 ... 100 s	VTP2G
2 – 10 ... 1000 s	VTP2K
3 – 0.1 ... 10 m	VTP2N
4 – 1 ... 100 m	VTP2P
5 – 10 ... 1000 m	VTP2R
6 –100 ... 10,000 m	VTP2R

Accessories

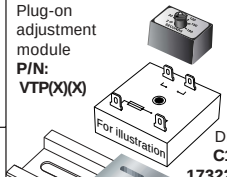
Mounting bracket
P/N: P1023-6

External adjust potentiometer
P/Ns:
P1004-16 (fig A)
P1004-16-X (fig B)

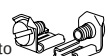


Female quick connect
P/N:
P1015-64(AWG 14/16)

Plug-on adjustment module
P/N:
VTP(X)(X)



Quick connect to screw adaptor
P/N: P1015-18



DIN rail P/Ns:
C103PM (Al)
17322005 (Steel)

Versa-knob
P/N: P0700-7

DIN rail adaptor
P/N: P1023-20

See accessory pages at the end of this section.