

Delay On Break (Release)

TSB Series Timing Module

5

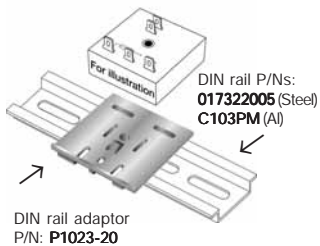


- Totally Solid State Encapsulated
- Fixed or Adjustable Delays From 0.05 ... 600 s in 4 Ranges
- +/- 2% Repeat Accuracy
- +/-5% Factory Calibration

Approvals:

Accessories

- External adjust potentiometer
P/Ns: P1004-95 (fig A) P1004-95-X (fig B)
- Mounting bracket
P/N: P1023-6
- Female quick connect
P/N: P1015-64 (AWG 14/16)
- Quick connect to screw adaptor
P/N: P1015-18
- Versa-knob
P/N: P0700-7



DIN rail adaptor
P/N: P1023-20

See accessory pages for specifications.

Description

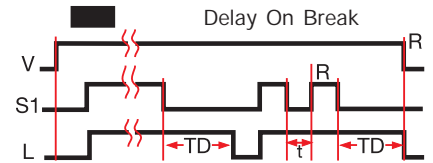
The TSB Series is a totally solid state delay on break timing module. The TSB is available with a fixed, external, or onboard adjustable time delay. Time Delays from .05 to 600 seconds, in 4 standard ranges, cover over 90% of all OEM and commercial appliance timing applications. The repeat accuracy is +/-2%. Operating voltages of 24, 120, or 230 V AC are available. The TSB's 1A steady state, 10A rated solid state output is perfect for direct control of solenoids, contactors, relays, lamps, buzzers, and small heaters. The TSB can be surface mounted with a single screw, or snapped on 35 mm DIN rail using the P1023-20 adaptor.

Operation

Input voltage must be applied before and during timing. Upon closure of the initiate switch, the output energizes. The time delay begins when the initiate switch opens. The output remains energized during timing. At the end of the time delay, the output de-energizes. The output will energize if the initiate switch is closed when input voltage is applied.

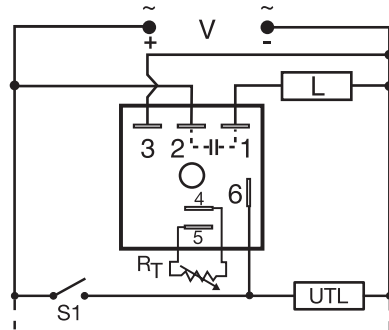
Reset: Reclosing the initiate switch during timing resets the time delay. Loss of input voltage resets the output and the time delay.

Function



V = Voltage L = Load S1 = Initiate Switch
TD = Time Delay R = Reset
t = Incomplete Time Delay
— = Undefined time

Connection



R_T is used when external adjustment is ordered.
Dashed lines are internal connections.

S1 = Initiate Switch UTL = Optional Untimed Load
L = Load

Ordering Table

TSB Series	X Input	X Adjustment	X Time Delay*
-2	24 V AC	-1 - Fixed	-1 - 0.05 ... 3 s
-4	120 V AC	-2 - External Adjust	-2 - 0.5 ... 60 s
-6	230 V AC	-3 - Onboard Adjust	-3 - 2 ... 180 s
			-4 - 5 ... 600 s

Example P/N: TSB422 Fixed – TSB410.5

* If Fixed Delay is selected, insert delay [0.05 ... 600] in seconds.

Delay On Break (Release)

TSB Series Timing Module

Technical Data

Time Delay	
Range	0.05 s ... 600 s in 4 adjustable ranges or fixed
Repeat Accuracy	+/-2% or 20 ms, whichever is greater
Tolerance (Factory Calibration)	≤ +/-5%
Time Delay vs. Temperature & Voltage	≤ +/-10%
Reset Time	≤ 150 ms
Input	
Voltage	24, 120, or 230 V AC
Tolerance	+/-20%
Line Frequency	50 ... 60 Hz
Power Consumption	≤ 2 VA
Output	
Type	Solid state
Form	Normally Open, closed before & during timing
Maximum Load Current	1 A steady state, 10 A inrush at 60°C
Off State Leakage Current	≅ 5 mA at 230 V AC
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 ... +75°C
Storage Temperature	-40°C ... +85°C
Humidity	95% relative, non-condensing
Weight	≅ 2.4 oz (68 g)

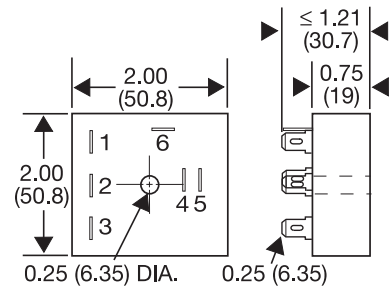
5

RT Selection Chart				
Desired Time Delay*				RT
Seconds				
1	2	3	4	Kohms
0.05	0.5	2	5	0
0.3	6	20	60	10
0.6	12	38	120	20
0.9	18	55	180	30
1.2	24	73	240	40
1.5	30	90	300	50
1.8	36	108	360	60
2.1	42	126	420	70
2.4	48	144	480	80
2.7	54	162	540	90
3.0	60	180	600	100

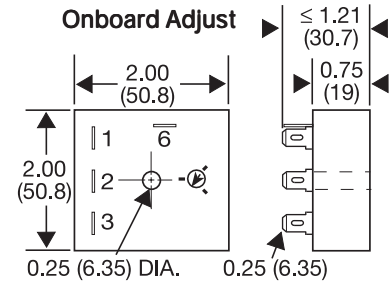
* When selecting an external RT add at least 20% for tolerance of unit and the RT.

Mechanical View

Fixed & External Adjust



Onboard Adjust



Inches (Millimeters)