

TSB SERIES



Description

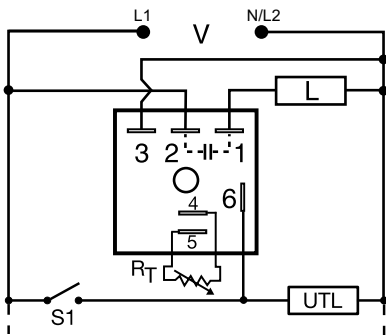
The TSB Series is a totally solid-state, delay-on-break timing module. The TSB Series is available with a fixed, external, or onboard adjustable time delay. Time Delays from 0.05 to 600 seconds, in 4 standard ranges, cover over 90% of all OEM and commercial appliance timing applications. The repeat accuracy is $\pm 2\%$. Operating voltages of 24, 120, or 230VAC 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 Series can be surface mounted with a single screw, or snapped on a 35 mm DIN rail using the P1023-20 adaptor.

Operation (Delay-on-Break)

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.

Wiring Diagram



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

R_T is used when external adjustment is ordered.

Features & Benefits

FEATURES	BENEFITS
Analog circuitry	Repeat accuracy $\pm 2\%$, Factory calibration $\pm 5\%$
Totally solid state and encapsulated	No moving parts to arc and wear out over time and encapsulated to protect against shock, vibration, and humidity
Wide time delay range	Meets almost all OEM and commercial appliance timing applications
1A steady, 10A inrush solid state output	Provides 100 million operations in typical conditions

Accessories



P1004-95, P1004-95-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.

Ordering Information

MODEL	INPUT VOLTAGE	ADJUSTMENT	TIME DELAY	MODEL	INPUT VOLTAGE	ADJUSTMENT	TIME DELAY
TSB2190	24VAC	Fixed	90s	TSB434	120VAC	Onboard	5 - 600s
TSB222	24VAC	External	0.5 - 60s	TSB632	230VAC	Onboard	0.5 - 60s
TSB41300	120VAC	Fixed	300s	TSB634	230VAC	Onboard	5 - 600s
TSB422	120VAC	External	0.5 - 60s				

If you don't find the part you need, call us for a custom product 800-843-8848

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Accessories



P0700-7 Versa-Knob
Designed for 0.25 in (6.35 mm) shaft of Versa-Pot. Semi-gloss industrial black finish.



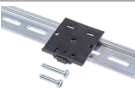
P1015-64 (AWG 14/16) Female Quick Connect
These 0.25 in. (6.35 mm) female terminals are constructed with an insulator barrel to provide strain relief.



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.



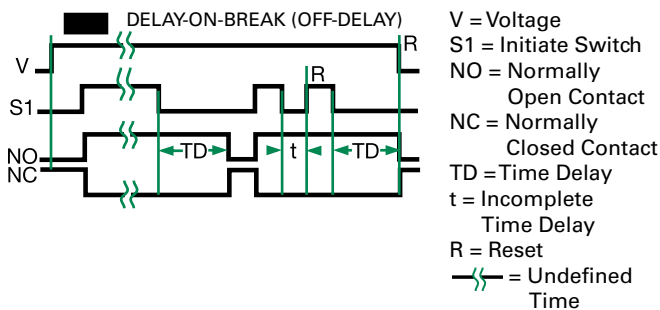
P1023-20 DIN Rail Adapter
Allows module to be mounted on a 35 mm DIN type rail with two #10 screws.

Selection Guide

R _T Selection Chart				
Desired Time Delay*				R _T
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 R_T add at least 20% for tolerance of unit and the R_T.

Function Diagram



Specifications

Time Delay Range	0.05s - 600s in 4 adjustable ranges or fixed
Repeat Accuracy Tolerance (Factory Calibration)	±2% or 20ms, whichever is greater
Time Delay vs Temp. & Voltage	≤ ±5%
Reset Time	≤ ±10%
Input Voltage	≤ 150ms
Tolerance	24, 120, or 230VAC
AC Line Frequency	±20%
Power Consumption	50/60 Hz
Output Type	≤ 2VA
Form	Solid state
Maximum Load Current	NO, closed before & during timing
Off State Leakage Current	1A steady state, 10A inrush at 60°C
Voltage Drop	≅ 5mA @ 230VAC
Protection Circuitry	≅ 2.5V @ 1A
Dielectric Breakdown	Encapsulated
Insulation Resistance	≥ 2000V RMS terminals to mounting surface
Mechanical Mounting Dimensions	≥ 100 MΩ
Termination	Surface mount with one #10 (M5 x 0.8) screw
Environmental	H 50.8 mm (2.0"); W 50.8 mm (2.0");
Operating/Storage Temperature	D 30.7 mm (1.21")
Humidity	0.25 in. (6.35 mm) male quick connect terminals
Weight	-40° to 75°C / -40° to 85°C
	95% relative, non-condensing
	≅ 2.4 oz (68 g)