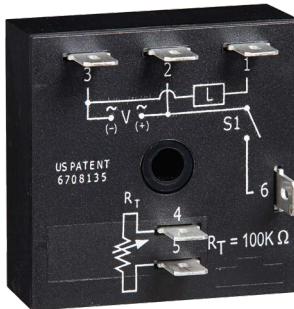
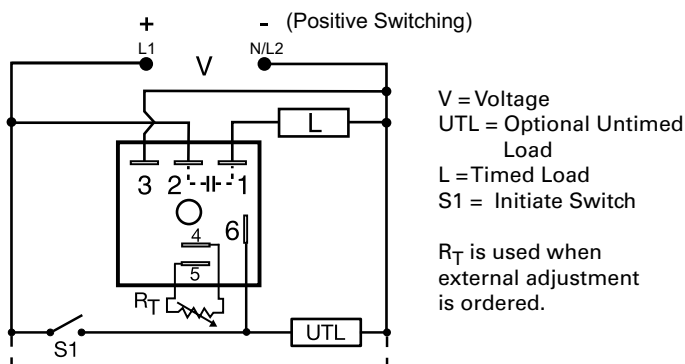


TSDB SERIES



Wiring Diagram



Description

The TSDB Series is designed for more demanding commercial and industrial applications where small size, and accurate performance are required. The factory calibration for fixed time delays is within 1% of the target time delay. The repeat accuracy, under stable conditions, is 0.5% of the time delay.

The TSDB Series is rated to operate over an extended temperature range. Time delays of 0.1 seconds to 1000 minutes are available. The output is rated 1A steady and 10A inrush. The modules are totally solid state and encapsulated to protect the electronic circuitry.

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 is opened. 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 time delay and output.

Features & Benefits

FEATURES	BENEFITS
Microcontroller based	Repeat accuracy + / - 0.5%, Factory calibration + / - 1%
Compact design	Allows flexibility for OEM applications
1A Steady, 10A inrush solid-state output	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
Wide temperature range: -40° to 75°C	Reliable in demanding commercial and industrial applications

Ordering Information

MODEL	INPUT VOLTAGE	ADJUSTMENT	TIME DELAY	SWITCHING MODE
TSDB320P	24VDC	External	0.1 - 10s	Positive
TSDB421	120VAC	External	1 - 100s	n/a
TSDB431	120VAC	Onboard	1 - 100s	n/a

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

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.

TSDB SERIES

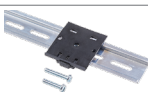
Accessories



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.

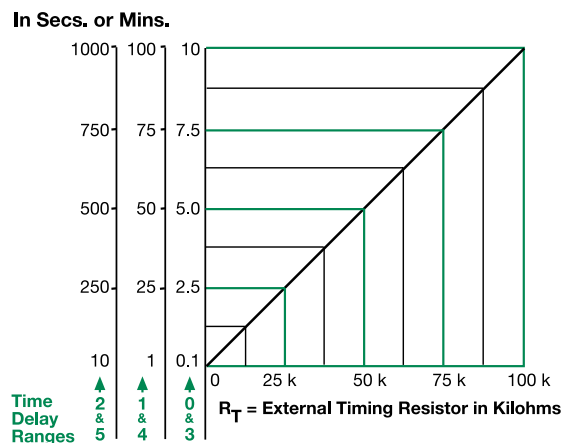


C103PM (AL) DIN Rail
35 mm aluminum DIN rail available in a 36 in. (91.4 cm) length.



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

External Resistance vs. Time Delay



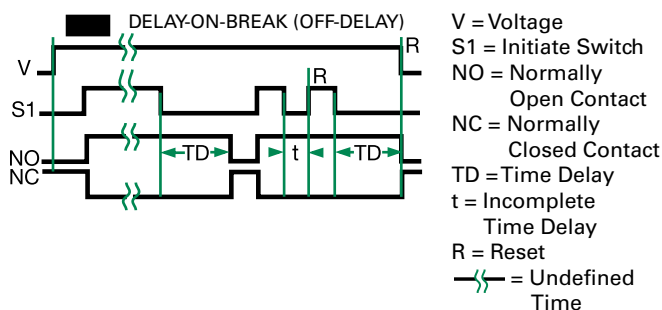
This chart applies to externally adjustable part numbers.

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 .

Function Diagram



Specifications

Time Delay Range	0.1s - 1000m in 6 adjustable ranges or fixed
Repeat Accuracy	$\pm 0.5\%$ or 20ms, whichever is greater
Tolerance (Factory Calibration)	$\leq \pm 1\%$
Reset Time	$\leq 150\text{ms}$
Initiate Time	$\leq 20\text{ms}$
Time Delay vs Temp. & Voltage	$\leq \pm 2\%$
Input Voltage	12 or 24VDC; 24, 120, or 230VAC
Tolerance	$\pm 15\%$
Power Consumption	AC $\leq 2\text{VA}$; DC $\leq 1\text{W}$
AC Line Frequency/DC Ripple	50/60 Hz / $\leq 10\%$
Output Type	Solid state
Form	NO, closed before & during timing
Maximum Load Current	1A steady state, 10A inrush at 60°C
Off State Leakage Current	$\approx 5\text{mA}$ @ 230VAC; DC $\approx 1\text{mA}$
Voltage Drop	AC $\approx 2.5\text{V}$ @ 1A; DC $\approx 1\text{V}$ @ 1A
DC Operation	Positive or negative switching
Protection	
Circuitry	Encapsulated
Dielectric Breakdown	$\geq 2000\text{V RMS}$ terminals to mounting surface
Insulation Resistance	$\geq 100\text{ M}\Omega$
Polarity	DC units are reverse polarity protected
Mechanical	
Mounting	Surface mount with one #10 (M5 x 0.8) screw
Dimensions	H 50.8 mm (2.0"); W 50.8 mm (2.0"); D 30.7 mm (1.21")
Termination	0.25 in. (6.35 mm) male quick connect terminals
Environmental	
Operating/Storage Temperature	-40° to 75°F / -40° to 85°F
Humidity	95% relative, non-condensing
Weight	$\approx 2.4\text{ oz}$ (68 g)