



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

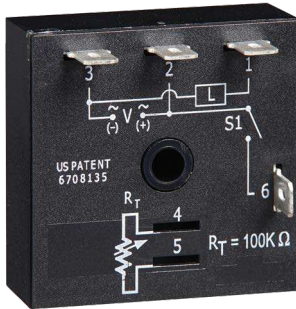
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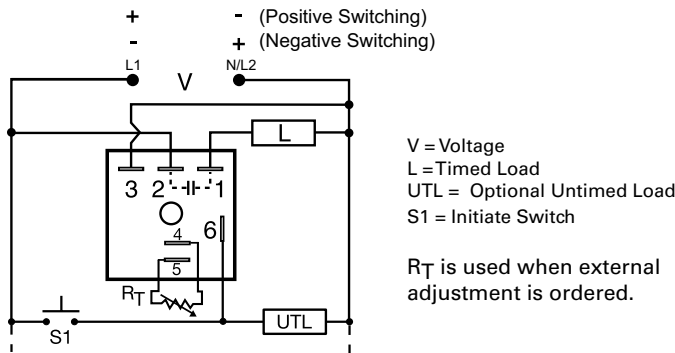
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# TSDS SERIES



## Wiring Diagram



## Description

The TSDS 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 TSDS 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. This product is suitable for many applications, including dispensing, welding, and exposure timing.

### Operation (Single Shot)

Input voltage must be applied before and during timing. Upon momentary or maintained closure of the initiate switch, the output energizes for a measured interval of time. At the end of the delay, the output de-energizes. Opening or reclosing the initiate switch during timing has no effect on the time delay. The output will not energize if the initiate switch is closed when input voltage is applied.

**Reset:** Reset occurs when the time delay is complete and the initiate switch is opened. Loss of input voltage resets the time delay and output.

## Features & Benefits

FEATURES	BENEFITS
<b>Compact, low cost design measuring 2 in. (50.8mm) square</b>	Allows flexibility for OEM applications
<b>Microcontroller based</b>	Repeat Accuracy +/- 0.5%, Factory calibration +/- 1%
<b>1A Steady, 10A inrush solid-state output</b>	Provides 100 million operations in typical conditions.
<b>Totally solid state and encapsulated</b>	No moving parts to arc and wear out over time and encapsulated to protect against shock, vibration, and humidity
<b>Wide temperature range: -40° to 75°C</b>	Reliable in demanding commercial and industrial applications

## Ordering Information

MODEL	INPUT VOLTAGE	ADJUSTMENT	TIME DELAY	SWITCHING MODE
TSDS2110S	24VAC	Fixed	10s	n/a
TSDS320N	24VDC	External	0.1 - 10s	Negative
TSDS321P	24VDC	External	1 - 100s	Positive
TSDS421	120VAC	External	1 - 100s	n/a

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

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

## TSDS SERIES

### Accessories



**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**

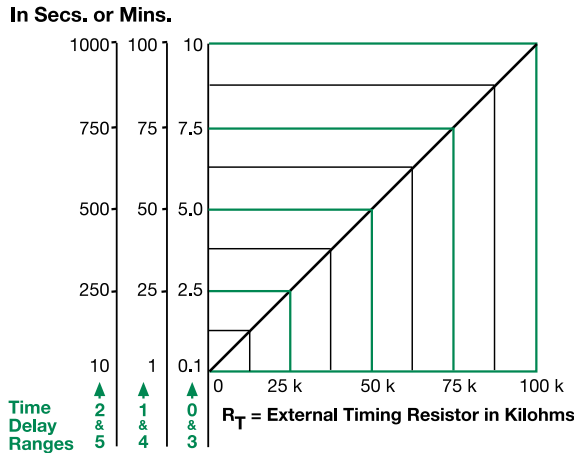
35 mm aluminum DIN rail available in a 36 in. (91.4 cm) length.



**P1023-20 DIN Rail Adapter**

Allows module to be mounted on a 35 mm DIN type rail with two #10 screws.

### External Resistance vs. Time Delay

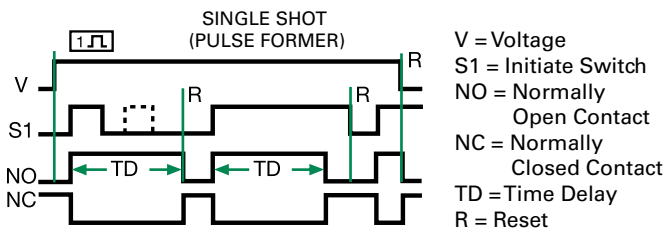


**This chart applies to externally adjustable part numbers.**  
The time delay is adjustable over the time delay range selected by varying the resistance across the  $R_T$  terminals; as the resistance increases the time delay increases.

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

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