

# THD1B410.5S



## Description

The THD1B410.5S combines accurate timing circuitry with high power solid-state switching. It can switch motors, lamps, and heaters directly without a contactor. You can reduce labor, component cost, and increase reliability with these small, easy-to-use, timers.

### Operation (Delay-on-Make)

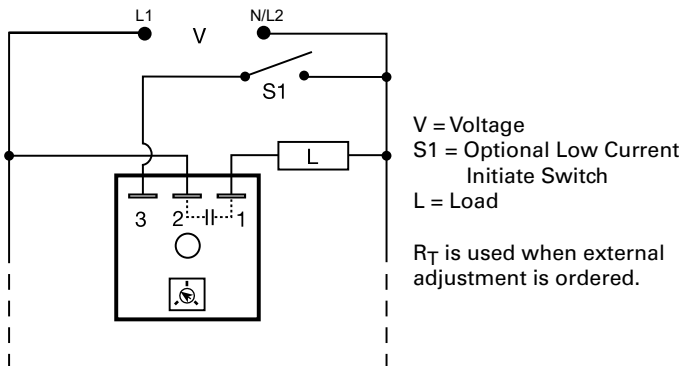
Upon application of input voltage, the time delay begins. The output is de-energized before and during the time delay. At the end of the time delay, the output energizes and remains energized until input voltage is removed.

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

## Features & Benefits

FEATURES	BENEFITS
<b>Microcontroller based</b>	Repeat Accuracy +/- 0.5%, Factory calibration +/- 1%
<b>Compact, low cost design</b>	Allows flexibility for OEM applications and reduces labor and component costs
<b>High load currents up to 20A, 200A inrush</b>	Allows direct operation of motors, lamps, and heaters directly without a contactor
<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>Metalized mounting surface</b>	Facilitates heat transfer for high current applications

## Wiring Diagram



## Accessories



**P1004-95, P1004-95-X Versa-Pot**  
Panel mountable, industrial potentiometer recommended for remote time delay adjustment.



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



**P1015-13 (AWG 10/12), 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.

# THD1 SERIES

## Specifications

### Time Delay

**Range** 0.1s - 1000m in 6 adjustable ranges or fixed  
**Repeat Accuracy** ±0.5% or 20ms, whichever is greater

**Tolerance (Factory Calibration)** ≤ ±1%

**Recycle Time** ≤ 150ms

**Time Delay vs Temp. & Voltage** ≤ ±2%

### Input

**Voltage** 24, 120, or 230VAC

**Tolerance** ±20%

**Line Frequency** 50/60 Hz

**Power Consumption** ≤ 2VA

### Output

**Type** Solid state

**Form** NO, open during timing

Maximum Load Current	Output	Steady State	Inrush**
	A	6A	60A
	B	10A	100A
	C	20A	200A

**Minimum Load Current** 100mA

**Voltage Drop** ≈ 2.5V @ rated current

**OFF State Leakage Current** ≈ 5mA @ 230VAC

### Protection

**Circuitry** Encapsulated

**Dielectric Breakdown** ≥ 2000V RMS terminals to mounting surface

**Insulation Resistance** ≥ 100 MΩ

### 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** 38.4 mm (1.51")

**Termination** 0.25 in. (6.35 mm) male quick connect terminals

### Environmental

**Operating/Storage**

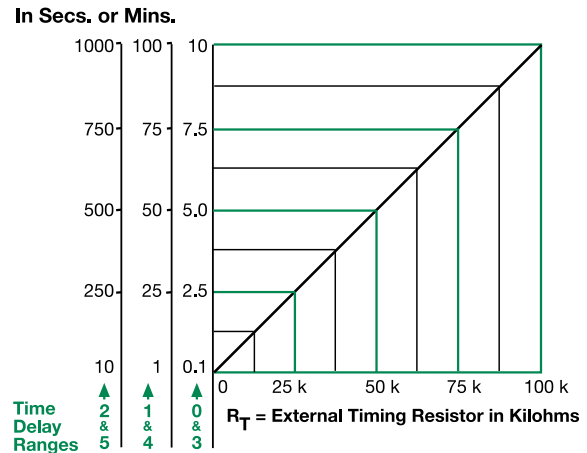
**Temperature** -40° to 60°C / -40° to 85°C

**Humidity** 95% relative, non-condensing

**Weight** ≈ 3.9 oz (111 g)

\*\*Must be bolted to a metal surface using the included heat sink compound. The maximum mounting surface temperature is 90°C. Inrush: Non-repetitive for 16ms.

## External Resistance vs. Time Delay



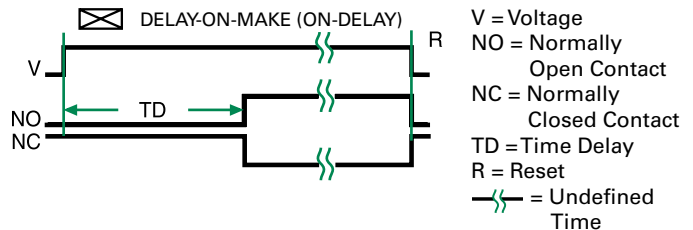
**This chart applies to externally adjustable part numbers.**

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



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