

# Time Delay Relays

## DEDICATED - INTERVAL

### THD2 Series



### Description

The THD2 Series 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, Digi-Power timers.

#### Operation (Interval)

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

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

### Features

- Microcontroller based
- High load currents up to 20A, 200A inrush
- Totally solid state and encapsulated
- Metalized mounting surface
- Compact, low cost design

### Benefits

- Repeat Accuracy + / - 0.5%, Factory calibration + / - 1%
- Allows direct control of motors, lamps and heaters without a contactor
- No moving parts to arc and wear out over time and encapsulated to protect against shock, vibration, and humidity
- Facilitates heat transfer in high current applications
- Allows flexibility for OEM applications and reduces labor and components costs

### 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%  
**Reset Time** ≤ 150ms

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

#### Input

**Voltage** 24, 120, or 230VAC  
**Tolerance** ±20%  
**AC Line Frequency** 50/60 Hz

#### Output

**Type** Solid state  
**Form** NO, closed 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 at 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");  
**W** 50.8 mm (2");  
**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.

### Web Resources

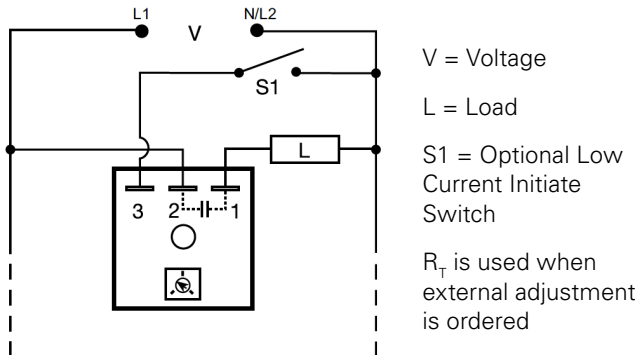
Download technical documents: [Littelfuse.com/thd2](http://Littelfuse.com/thd2)

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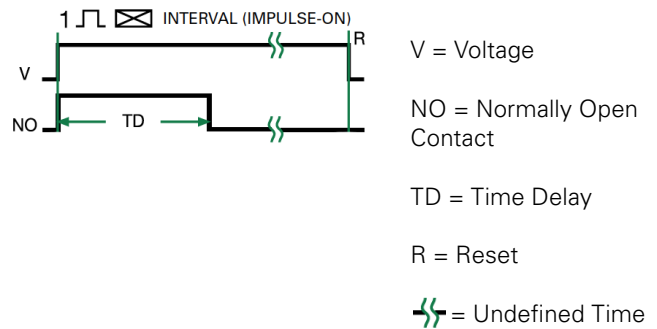
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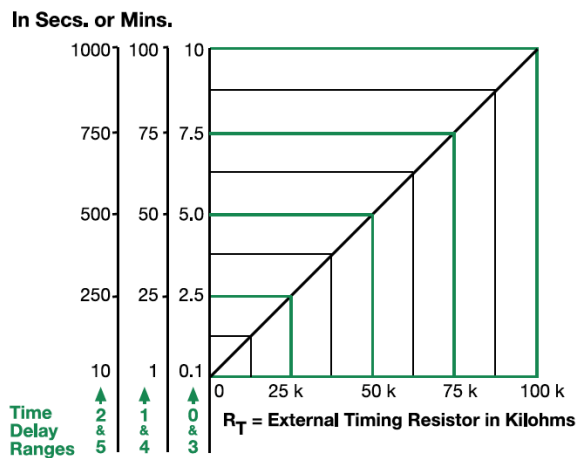
#### Wiring Diagram



#### Function Diagram



#### 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  $R_T$ .

#### Ordering Information

MODEL	OUTPUT RATING	INPUT VOLTAGE	ADJUSTMENT	TIME DELAY
THD2C420	20 A	120 VAC	External	0.1 - 10 s
THD2C423	20 A	120 VAC	External	0.1 - 10 m
THD2C433	20 A	120 VAC	Onboard	0.1 - 10 m
THD2C620	20 A	230 VAC	External	0.1 - 10 s
THD2C633	20 A	230 VAC	Onboard	0.1 - 10 m

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.



##### 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.

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