

## Lockout With Random Start T2D Series HVAC/R Timer



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YEAR  
WARRANTY

- Lockout Delay--Prevents Rapid Recycling of Compressor
- Random Start Delay--Helps Prevent Low Voltage Starting
- Delay on Make Timer--Optional Two Terminal Series Connection
- Totally Solid State 1 A Output
- 24 V AC ... 230 V AC in 2 Ranges

### Description

The T2D Series provides protection against short cycling of compressors and other motors. At the end of each operation, a lockout delay prevents restarting the compressor or motor until the delay is completed. 24 V AC models can be used with thermostats that include a cooling anticipator resistor. Can be connected in series with the load for delay on make operation.

### Operation

**Connection #1:** Upon application of input voltage, a random start time delay begins. At the end of this time delay, the output is energized. **Lockout Delay:** Input voltage must be applied prior to and during timing. When the thermostat or initiate switch opens, the output de-energizes and the lockout time delay begins. At the end of the lockout delay, the output is energized allowing the load to immediately energize when the initiate switch or thermostat closes.

**Connection #2:** Upon application of input voltage and closure of initiate switch, the time delay begins. At the end of the time delay, the output is energized and remains energized until power is removed.

**Reset:** Removing power resets the output and the time delay.

■ Approvals:



Patent  
5809793

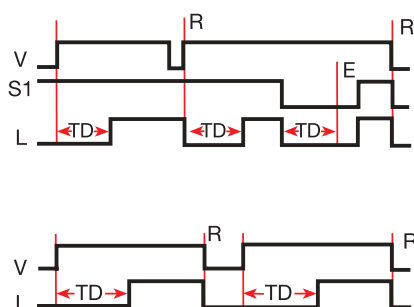
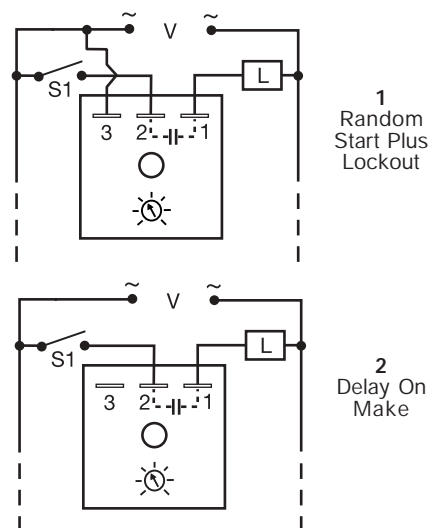
### Ordering Table

T2D Series	X Input	X Adjustment	X Time Delay *	
	24A - 24 V AC	-1 - Fixed	-1 - 1 ... 100 s	*If Fixed Delay is selected, insert delay [1 ... 1000] followed by (S) sec. or [0.1 ... 100] (M) min.
	120A - 120/230 V AC	-2 - Knob Adjustable	-2 - 10 ... 1000 s	
			-3 - 0.1 ... 10 m	
			-4 - 1 ... 100 m	

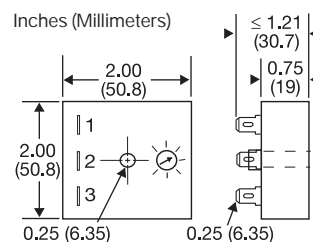
Example P/N: T2D24A23  
Fixed - T2D120A1180S

### Technical Data

<b>Input</b>	
Voltage	24 V AC, or 120/230 V AC in 2 ranges
Tolerance	+/-20%
Frequency	50 ... 60 Hz
<b>Output</b>	
Minimum Load Current	24 V AC--100 mA; 120/230 V AC--40 mA
Rating	1 A steady state, 10 A inrush at 60°C
Voltage Drop	≅ 2.5 V at 1 A
<b>Time Delay</b>	
Initiate Time	After timing--16 ms
Type	Analog circuitry
Lockout & Random Start Delays	1 s ... 100 m in 4 adjustable ranges or fixed Note: The lockout & random start delays are the same length.
Tolerance	Adjustable: +/-30%; Factory Fixed: +/-30%
Repeat Accuracy	+/-1%
Reset Time	After timing--16 ms; During timing--≤200 ms
<b>Protection</b>	
Dielectric Breakdown	≥ 2000 V RMS terminals to mounting surface
Insulation Resistance	≥ 100 MΩ
<b>Mechanical</b>	
Mounting	Surface mount with one #10 (M5 x 0.8) screw
Package	2 x 2 x 1.21 in. (50.8 x 50.8 x 30.7 mm)
Termination	0.25 in. (6.35 mm) male quick connect terminals
<b>Environmental</b>	
Operating Temperature	-20°C ... +60°C
Storage Temperature	-40°C ... +85°C
Humidity	95% relative, non-condensing
Weight	≅ 2.4 oz (68 g)
<b>Cooling Anticipator (24 V AC Units Only)</b>	
Minimum Cooling Anticipator	≥ 3,000 Ω



V = Voltage L = Load  
S1 = Initiate Switch or Thermostat  
E = Ready R = Reset  
TD = Time Delay



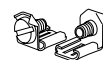
### Accessories

Female quick connect



P/N:  
P1015-64 (AWG 14/16)

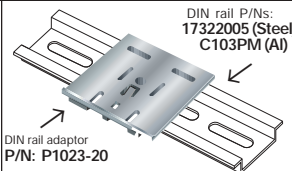
Quick connect to screw adaptor



P/N: P1015-18



Mounting bracket  
P/N: P1023-6



DIN rail P/Ns:  
17322005 (Steel)  
C103PM (Al)  
DIN rail adaptor  
P/N: P1023-20

See accessory pages at the end of this section.